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ABSTRACT

In this chapter, a series of nested regression models are estimated to analyze three measures of adult socioeconomic attainment measured at age 29: (1) educational attainment; (2) occupational attainment; and (3) earnings. The models seek to relate risk, social capital, social-psychological factors, and life course events in early adulthood, both positive and negative, to each of the measures of adult attainment and to trace the social-psychological and life course pathways through which both risk and social capital have their impacts. The basic theoretical framework is from work by James Coleman (1988). The data are from the National Longitudinal Survey of Young Men, whose subjects were African-American and white men who were between the ages of 14 and 17 and living at home in 1966. Of the risk measures, low parental education, low family income, and having four or more siblings were most consistently associated with lower adult socioeconomic attainment. Having parents with a low occupational status, having fewer than two parents, and having grown up in a central city were not related for Whites, but the parental occupational status and having fewer than two parents were related to socioeconomic outcome for African Americans. Findings support the importance of social capital as a construct for modeling adult attainment. Three tables present analysis. (Contains 46 reference.) (SLD)

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# ANALYSIS OF YOUNG MEN: CHAPTER TWO

# DETERMINANTS OF ADULT SOCIOECONOMIC ATTAINMENT IN YOUNG MEN: AN ANALYSIS OF THE ROLE OF RISK AND SOCIAL CAPITAL FACTORS, AND THE PATHWAYS THROUGH WHICH THEY HAVE THEIR IMPACTS

by

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## INTRODUCTION

In this chapter, a series of nested regression models are estimated to analyze three measures of adult socioeconomic attainment measured at age 29: educational attainment, occupational attainment, and earnings. The models seek to relate risk, social capital, social-psychological factors and life course events in early adulthood, both positive and negative, to each of the measures of adult attainment, and to trace the social-psychological and life course pathways through which both risk and social capital factors have their impact. Figure One shows the model indicating the assumed relationships among these groups of measures that helps to guide the model sequencing for each of the outcomes.

### Conceptual Approach

The conceptual approach used in this study of positive achievement among at-risk youth was described in detail in the previous chapter. Briefly, the basic theoretical framework comes from recent work by James Coleman (1988) who blends the insights from both sociological and economic models of status attainment by introducing the notion of "social capital" into the economist's capital-oriented framework. Social capital consists of the social processes operating within the family, and between family members and the wider community. The importance of social capital to socioeconomic attainment is that it can help to facilitate the eventual acquisition of other forms of capital (e.g. human and financial capital) by children and youth. Examples of social capital within the home include time spent between parents and children, and the values, norms and expectations operating within the family. Social capital within the wider community would include close relationships among parents in the neighborhood, and between parents and the local institutions (such as schools) which affect their children.

Within this basic model, I take a "risk" perspective by modeling a set of background factors as dichotomous measures of risk, thus highlighting the consequences of coming from especially disadvantaged groups. Finally, a life course approach is also incorporated, analyzing important events within the transition to adulthood which may form part of the causal pathway between family background factors (both risk and social capital) and adult socioeconomic attainment.



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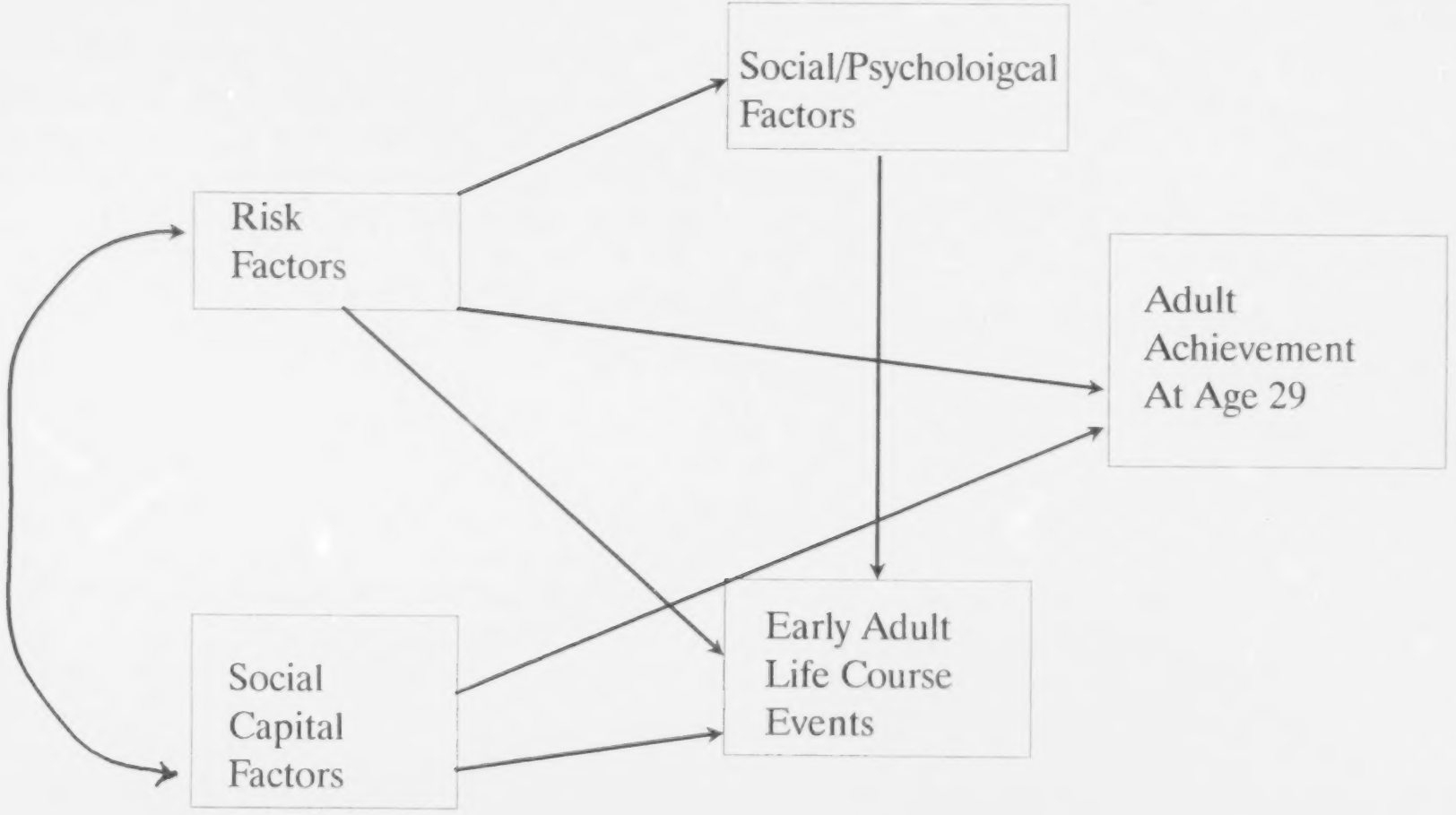
# Figure 1
## Basic Model of Pathways to Achievement Among Male Youth



Below the specific set of questions to be addressed in the analyses are outlined, and a rationale is provided for each. This is followed by a description of the data, and a discussion of the sequence of models which will be used to shed light on these questions. Finally, analysis results are presented and discussed, and issues for further research identified.

## QUESTIONS AND RATIONALE

**Which risk and which social capital factors are the most important in determining adult socioeconomic achievement among at-risk youth?** In Chapter One, the bivariate relationships between each of the risk and social capital measures and the measures of adult socioeconomic attainment were explored. Here we seek to uncover the direct effects of individual risk and social capital measures on adult attainment net of other such measures. Unfortunately, because most of these measures are moderately correlated and contemporaneously measured, one cannot estimate the indirect effects of these variables, and so cannot estimate the total causal relationship of each measure to adult socioeconomic attainment. Nevertheless, such analyses will provide us with important information regarding the nature of the causal chain or pathway leading to adult achievement, information which can be particularly useful for policy interventions.

**Do the effects of risk factors compound?** That is, is the cumulative effect of multiple risks more powerful than the total of their individual effects? There is an emerging tradition of research which looks at the role of multiple risks in affecting the well-being of children and youth (see, for example, Smith and Zaslow forthcoming; Rutter, and Moore, Nord and Peterson 1989). Evidence of such compounding effects in the area of child mental health were noted by Rutter, who found that the chances of children experiencing psychiatric disorder increased multiplicatively with the number of family risk factors, factors that included marital discord, low socioeconomic status, large family size, paternal criminality and maternal psychiatric disorder (Rutter 1979).

In addition, several theorists of the underclass contend that the effects of risk factors for adults and children alike can compound when many risk factors are present in a family or a community, being indicative of a "social isolation", a "tangle of pathology" or a "culture of poverty" (Wilson 1987, Lewis 1966, Banfield 1974).

**What is the importance of social capital factors relative to risk factors in predicting adult socioeconomic attainment?** This question goes to the heart of James Coleman's mission of developing social capital as an important missing element in existing sociological and economic analyses of socioeconomic achievement. To be successful in this endeavor, social capital measures will have to add substantially to the explanatory power of such models. Previous research on young children indicates that social capital factors can be as or more important than standard socioeconomic and demographic characteristics in affecting measures of achievement and cognitive development (Brown 1993a, Baker and Mott 1989). Research based on Wisconsin social-psychological models of socioeconomic achievement have included such measures as parent and teacher encouragement to go to college (both of which appear in our models), and have found both factors to be significantly related to adult achievement (Sewell and Hauser 1975, Alexander, Eckland and Griffin 1975).

**Does social capital work differently for at-risk and non at-risk youth, or for different types of at-risk youth?** I hypothesize that the presence of some risk factors, particularly those related to human and financial capital, will reduce the positive effects of social capital factors. Parents lacking such capital will be less able to assist their children in turning social capital into adult achievement.

Alternative models of this relationship can be derived from research on child well-being. Rutter found that certain "protective" factors actually reduced or eliminated the impact of risk factors on child competence (Rutter 1979). On the other hand Luthar and Zigler (1991), in their review of the literature on resilience in childhood, found that the inclusion of interaction terms between risk and protective factors added little or nothing to the proportion of variance explained, leading them to prefer a simple additive model.

**Through what pathways do risk and social capital measures affect adult socioeconomic achievement?** Investigation of two types of "pathways" through which risk and social capital factors may influence adult achievement are undertaken. First, I investigate whether the effects of risk and social capital may be mediated via such internalized characteristics of the youth as knowledge (human capital), desires and expectations (internalized social capital) related to their own potential achievements as adults. These are forms of capital for the youth which it is assumed are determined



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in part by the various forms of capital available to them from their family (Coleman 1988, Becker 1981, Sewell and Hauser 1975). Second, positive and negative life-course events taking place between youth and adulthood are examined for their impacts on adult achievement, and the extent to which they mediate the relationship of risk and social capital factors to adult achievement. In addition, we are interested in whether social capital can help those who have experienced mis-steps to overcome their negative effects.

**How do the impacts of risk and social capital factors differ by race?** The literature on socio-economic attainment has consistently shown that family background factors such as those in our models have less impact on the attainment of African-American males than white males, though the size of that difference has shrunk considerably over time (Blau and Duncan 1967, Featherman and Hauser 1978, Wilson 1978). Several explanations have been offered for this pattern which are related to the effects of racism. First, racism is said to restrict the socioeconomic opportunity of African-American youth to such a level that it blunts the impact of family background. Second, the greatly restricted educational and economic opportunities of African-American parents (particularly those of this generation) may mean greater heterogeneity of abilities and talents among those parents showing low levels of socioeconomic achievement. This also would tend to make family background measures related to socioeconomic position less predictive of adult outcomes for African-American youth.

A possible exception to the expected pattern of weaker effects of background characteristics on the achievement of African-American males is the effect of parental encouragement on educational attainment. Descriptive analyses in the previous chapter revealed that at-risk African-American youth had access to significantly more parental encouragement to continue their education than at-risk white youth, and that African-American youth who were at-risk did not receive significantly less encouragement than those who were not at-risk (see Table Twenty-five, Chapter One). It is reasonable to hypothesize that parental encouragement is not only more common but also a more powerful factor for African-American youth than white youth.

**How do the results of the models vary according to the measure of adult achievement examined?** For measures of socioeconomic attainment taken at or around age 29 our descriptive

(bivariate) analyses demonstrated that risk and social capital measures are strongly related to educational attainment and occupational attainment, and rather weakly related to income measures (though the relationship strengthened considerably when such outcomes were measured in later adulthood, at or around age 35). This pattern is expected to be repeated in the multivariate analyses.

In terms of the impact of individual measures of risk and social capital, it is expected that there will be a lot of similarity across outcome measures, both because of the strong relationship among the outcome measures themselves (e.g., education has a large impact on income and occupational prestige), and because the social processes represented by the risk and social capital measures are expected to affect the individual in ways which have general consequences for achievement in adulthood.

Nevertheless, the determinants of achievement are not identical for these various measures, and certain distinct patterns are expected. For the risk measures, the forms of capital most similar to that represented in the outcome measure are expected to figure relatively more prominently there than for other outcomes. For example, parental occupational prestige should figure more prominently in equations predicting to the respondent's occupational attainment than it does predicting to other outcomes. Among the social capital measures it is expected, not surprisingly, that the three education-related measures will predict most strongly to educational attainment.

Previous research indicates that the direct effects of family background and social support measures (such as our risk and social capital measures) on adult occupational and earnings achievement are greatly reduced or eliminated once an individual's educational attainment is introduced into the model (Sewell and Hauser 1975, Alexander et al. 1975). Similar results are expected in the present analysis.

## SAMPLE AND VARIABLES

For these regression analyses, a sample consisting of males in the National Longitudinal Survey of Young Men who were ages fourteen to seventeen and living at home at the time of the first survey is used. This limitation of the sample is necessary because many of the variables of interest (certain risk measures, all intermediate outcomes (middle-steps and mis-steps), and most personal characteristics) were not available or could not be reliably measured for respondents who were older and/or living away from home at the time of the initial survey. As a result, the analyses can only cover measures of adult achievement taken at or around age 29. This limitation is something of a sacrifice, since outcomes related to income and earnings were more strongly related to risk factors at age 35 than age 29 (see Tables Eighteen through Twenty-one, Chapter One); but it is necessary in order to include a full array of predictive variables.

As noted in the previous chapter, rates of attrition over the course of 15 years are rather high for this survey, running nearly fifty percent for African-American respondents by the final year of the survey. Previous analyses indicate that those who come from low income families are somewhat more likely to have left the sample by 1981 (Rhoton and Nagi 1991) As a result, there may be some biases in our analysis results, particularly for African-Americans. The inclusion of a family income measure (indicating whether the family was below 150 percent of the poverty line) in the analyses will reduce but not eliminate possible biases.[1]

The three measures of adult socioeconomic attainment are (1) highest grade completed, (2) occupational prestige, and (3) yearly earnings, all measured at or around age 29. In our descriptive analyses, we also looked at family income, hourly wages, family assets and weeks unemployed. Patterns of relationship between the four income-related measures and risk and social capital

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[1]Sample selection models can be used to attempt to correct for such biases. Recently, however, there has been a great deal of debate concerning the effectiveness and accuracy of existing techniques in reducing sample selection bias. Many now argue that such models should be used only when a strong selection equation with one or more identifiers (which predict to the selection event but not to the substantive outcome of interest) can be constructed (Winship and Mare 1992, Mare personal communication, Stolzenberg 1990). When it was determined that a strong case for a theoretically distinct identifier variable could not be made for these analyses, the decision was made to forego the use of such models.



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measures were similar across the four measures. Of the four, yearly earnings was chosen for further analysis because it is the simplest to interpret theoretically, and because it is the measure which is used in many classical analyses of male socioeconomic attainment (Blau and Duncan 1967, Featherman and Hauser 1978, Sewell and Hauser 1975, Alexander et al. 1975).[2]

All of the risk, social capital, and intermediate outcome measures used in the descriptive analyses presented earlier are included as independent variables in these analyses. Risk and social capital factors all refer to the youth's status in adolescence. Intermediate outcome measures refer to the youth's experience through age 26, with the exception of the measure for early marriage which refers to marriage before age 20.

Risk factors include living with fewer than two parents, having four or more siblings, having no parent with a high school degree, a family income less than 150 percent of the poverty line, and a household head with low occupational prestige (defined as the bottom quartile). Residence in a central city (measured at ages 14-17) is also included, though descriptive analyses in the previous chapter indicated that it did not operate as an indicator of risk for this cohort of men.

Social capital factors include number of reading materials in the house at age 14, parental encouragement to continue education past high school, teacher encouragement to continue past high school, and a measure of residential stability (whether or not the youth had lived in the same county his entire life as of the date of the first interview). Unfortunately, the data are limited in terms of available social capital measures. The four available measures represent selected aspects of what is a very rich concept. Therefore, these analyses should be seen as an exploration of some of the possibilities inherent to the concept rather than a definitive test of its worth.

Intermediate outcomes include early marriage (before age 20), late graduation from high school, number of years of unstable employment between ages 18 and 26, service in the armed forces by age 26, and receipt of occupational training by age 26. The first three are defined as mis-steps,

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[2]Preliminary regression analyses of weeks unemployed at age 29 revealed no significant relationship to measures of risk or social capital for whites, and a complex and contradictory set of relationships for African-American males. For these reasons, further analyses were not pursued.

events likely to retard adult achievement. Occupational training is expected to be positively associated with achievement in adulthood. The direction of the effect of military service is unclear. While military service can delay occupational achievement in the civilian labor force, it can also provide skills and discipline that can increase adult socioeconomic attainment.

In addition, three social-psychological characteristics of the respondent as a youth are analyzed; level of desired adult occupational achievement; personal expectations that he will meet this goal; and a measure of his general knowledge of the world of work. Both the economics (Becker 1981) and sociological (Sewell and Hauser 1975) traditions of socioeconomic attainment research identified by Coleman, and Coleman's own social capital model (Coleman 1988) identify these social psychological characteristics as comprising an important causal pathway mediating the relationship between risk and social capital factors on the one hand, and adult socioeconomic attainment. Ideally, one would like to have had some measure of intellectual ability as well. Previous research has shown this to be a very important variable mediating the relationship between family background characteristics and adult socioeconomic achievement (Sewell and Hauser 1975, Alexander et al. 1975). Unfortunately, no such measures exist in the data base.

Appendix One offers ranges, means, and standard deviations by race for each of the variables used in these analyses.

## METHODS AND MODELS

In designing the multivariate analyses for this study, I have chosen to analyze the entire sample rather than limiting the analyses to variously defined groups of at-risk youth. Differences between at-risk youth and non at-risk youth in the impact of social capital and youthful mis-steps are measured with the use of interaction terms between measures of risk and those measures.

Limiting the analyses to various groups whom we have defined as "at-risk" (e.g., the poor, those from single parent families, those with four or more total risks) was considered, but was rejected for a number of reasons. First, though there are reasons to suspect that social capital and mis-steps may operate differently in the lives of at-risk youth than for those not at-risk, there is no

established literature to indicate that this is the case, or under what circumstances this is the case. Thus, it becomes an important proposition about at-risk youth in need of testing, rather than one to be assumed.

Second, in this project we have treated risk as a rather broad construct, and have operationalized it in half a dozen or more ways. To analyze separately even a large subset of these operationalizations, looking at a range of adult achievement measures for each group, would create a cumbersome set of analyses, and one from which it would be very difficult to draw general conclusions.

Third, simply eliminating those not at-risk from the analysis may introduce substantial selectivity bias into estimates for the remaining measures in the regression equations. One would have to use sample selection models of some sort to correct for this bias. To produce a good selection model one must be able to specify one or more variables which predict to the selection outcome but not to the adult achievement outcome (Winship and Mare 1992). Because the remaining risk and social capital measures would be used in the equation predicting to adult achievement, it was concluded that the chances of finding such identifier variables were low.

Finally, there is a practical matter of limited sample sizes which would result from separate analyses for at-risk youth. For many at-risk groups, sample sizes would fall around or below one hundred for African-Americans. This is too small to support most of the planned analyses.

A series of nested regression models have been specified that allow for exploration of the research questions discussed above. All interaction measures are entered into the models using stepwise regression techniques, which add variables in order of their overall contribution to the variance explained.

**Model 1: Risk Model.** This model includes only the five family-based risk variables (having less than 2 parents, four or more siblings, parents lacking a high school education, low family income, or a household head with a low status occupation), central city residence, and age of respondent at the time of the first survey (as a control). With this model the relative importance of the various measures of adult achievement can be assessed.

**Model 2: Compound Risk Model.** A measure indicating whether the youth has four or more family-based risk factors is added. This is done to determine whether there is a negative synergistic effect when multiple risk factors are present.

**Model 3: Social Capital Model.** In this model social capital measures are added. Several issues are addressed. First, the direct impacts of each social capital measure on adult achievement are compared, net of other measures in the model. Second, by noting the increase (if any) in variance explained between models two and three, some light can be shed on the potential importance of social capital relative to risk measures in explaining adult achievement. Third, by interacting selected risk and social capital measures one can test whether social capital effects are higher, lower, or the same for at-risk and non at-risk youth.

Because there are no measures of the youth's academic ability to include into the model, several of the social capital measures (parental and teacher encouragement to continue education past high school) will reflect to an unknown extent the ability of the youth rather than the pure social capital effects of encouragement. For that reason, interpretation of the results of this model must be done with appropriate caution.

**Model 4: Social-Psychological Model:** In this model three personal characteristics of the youth measured at ages 14-17 are added: desired level of occupational attainment in adulthood; expectations of achieving that goal; and knowledge of the world of work. Their impact on the size and significance of the coefficients of the risk and social capital factors in the model is of greatest interest. Substantial reductions offer evidence that certain risk and social capital factors affect adult achievement in part through their impact on the goals, expectations and knowledge of the youth.

**Model 5: Life Course Model (Mis-steps and Middle Steps).** At this stage several measures of early positive and negative life course events are added to the model. The personal characteristics introduced in model four are dropped from the model in order to highlight the relationship of risk and social capital factors to these early outcomes. As in model five, substantial reductions in the size and significance of the coefficients of risk and social capital measures would indicate that their



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impact on adult achievement is mediated to some extent by these early outcomes. For achievement measures of occupational attainment and earnings, early outcomes will include educational attainment as well the others listed above.

In addition, two sets of interaction terms will be analyzed. Selected risk measures will be interacted with the measures of mis-steps (early marriage, late graduation, and unstable employment) to determine whether mis-steps are any more or less detrimental to the achievement of at-risk compared with non at-risk youth.

A second set of interactions will be done between measures of social capital and mis-steps to determine whether social capital measures continue to be positively associated with adult achievement for those who have experienced youthful mis-steps. If so, one can conclude that social capital is effective in helping those who have experienced mis-steps to overcome them.

In order to minimize the loss to sample size, missing values for independent variables in the models were generally given the weighted mean value based on the remainder of the sample. This practice was followed for all such measures with the exception of parental encouragement to continue one's education past high school. Missing data on this measure was associated with high levels of achievement in adulthood. Because of the non-random nature of the missing data for this measure, mean replacement was not an appropriate strategy. Instead, a separate dichotomous variable to identify those with missing data was added as a control to all equations involving the parental encouragement measure.

## EDUCATIONAL ATTAINMENT BY AGE 29

For this outcome, analyses are limited to the first four models outlined above (the risk model through the social-psychological model). The life course events featured in model five will in many cases have taken place after the respondent has finished his schooling; most people complete their educational attainment in their late teens and twenties. As a result, such measures are not appropriately used as predictors of adult educational attainment, even though technically the measure refers to attainment at age 29.

Model 1: Risk Model

Table One shows the results for a sequence of four nested models for white and African-American men. The first model, called the Risk Model, includes the six risk measures, with age at the time of the first interview as a control.

The most striking result of this first model is the degree of similarity across race groups both in terms of the proportion of variance explained, and in the pattern of effects across the risk variables. First, the proportion of variance explained in the model is only slightly higher for whites at 14.8 percent, versus 13.3 percent for African-American men. Second, the same three risk factors are significantly related to educational attainment for both groups; having four or more siblings, having no parents with a high school degree, and coming from a family with an income below 150 percent of the poverty line. Third, the coefficients for the first two of those measures are only slightly smaller for African-Americans than for whites, and are virtually identical for the poverty measure. Having no parent with at least a high school degree was associated with 1.3 fewer years of education for whites, and 1.1 years among African-Americans. Having four or more siblings is associated with approximately 3/4 of a year less schooling for whites and 1/2 year less schooling for blacks. Coming from a family at less than 150 percent of the poverty line is associated with about 3/4 years less schooling for both race groups.

One conclusion that can be drawn from these results is that effects associated with race (whether it is racism, culture, or whatever) do not appear to substantially alter the impact of family-based risk factors, or to affect which risk factors are important to educational attainment.

TABLE 1
Determinants of Adult Achievement Among White and African-American Males: Highest Grade Completed by Age 29

| | Model 1: Risk | | Model 2: Compound Risk | | Model 3: Social Capital | | | | Model 4: Social Psychological Paths | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Main Effects | | w/Risk Interactions | | | |
| | WHITE | AFRICAN AMERICAN | WHITE | AFRICAN-AMERICAN | WHITE | AFRICAN-AMERICAN | WHITE | AFRICAN-AMERICAN | WHITE | AFRICAN-AMERICAN |
| Intercept | 14.3*** | 13.0*** | 13.7*** | 12.8*** | 10.1*** | 8.3*** | 10.1*** | 8.9*** | 8.5*** | 7.3*** |
| RISK MEASURES | | | | | | | | | | |
| 1. < 2 parents | -.17 | -.37 | -.23 | -.48 | .36 | -.10 | .35 | -.05 | .19 | -.39 |
| 2. 4+ siblings | -.77*** | -.54† | -.84*** | -.57† | -.51*** | -.66* | -.51** | -.64* | -.40*** | -.39 |
| 3. Parent(s) < high school education | -1.34*** | -1.08*** | -1.40*** | -1.07*** | -.85*** | -.79** | -.85*** | -.77** | -.66*** | -.70* |
| 4. Low parental occupational status | .11 | .26 | .08 | .19 | .31 | -.03 | .31 | .08 | .37* | .11 |
| 5. < 150% Poverty | -.74*** | -.71* | -.77*** | -.80* | -.58** | -.50 | -.54* | -.99** | .28 | -.77* |
| 6. Central city residence | .16 | .41 | .10 | .44 | .23 | .14 | .23 | .14 | .16 | .14 |
| 7. 4+ Risks | | | .32 | .09 | | | | | | |
| SOCIAL CAPITAL | | | | | | | | | | |
| Reading Materials in Home | | | | | | | | | | |
| 8. 1-2 reading materials | | | | | .64* | .52† | .64* | .55† | .64* | .19 |
| 9. 3 reading materials | | | | | 1.53*** | .48 | 1.53*** | .53 | 1.22*** | -.15 |
| Parental Encouragement | | | | | | | | | | |
| 10. Some | | | | | .78** | .70 | .78** | .70 | .61** | .24 |
| 11. Much | | | | | 1.40*** | 1.24** | 1.40*** | 1.23** | 1.07*** | 1.07* |
| Teacher Encouragement | | | | | | | | | | |
| 12. Some | | | | | .35† | 1.92*** | .35† | 1.91*** | .24 | 1.42*** |
| 13. Much | | | | | .78*** | 2.30*** | .80*** | 1.44** | .48* | .94† |
| Residential Stability | | | | | | | | | | |
| 14. Never moved | | | | | -.22 | .07 | -.22 | .06 | -.09 | .27 |
| RISK/SOCIAL CAPITAL INTERACTIONS | | | | | | | | | | |
| 5 x 13 | | | | | | | -.03 | 1.10* | -.03 | 1.12* |
| SOCIAL PSYCHOLOGICAL | | | | | | | | | | |
| 15. Occupational desires | | | | | | | | | .02*** | .02*** |
| 16. Occupational expectations | | | | | | | | | .05*** | .08*** |
| 17. Knowledge of work | | | | | | | | | .51** | .21 |
| $R^2$ | .148 | .133 | .165 | .143 | .290 | .332 | .290 | .343 | .370 | .425 |

Source: Child Trends, Inc., Washington, D.C.



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Of the three risk factors reflecting human and financial capital, low parental education and family poverty figured prominently in reducing the educational attainment of offspring. The occupational prestige of the head of household had no impact net of other measures in the model.

Of the two measures related to family structure, having many siblings (four or more) reduced years of schooling completed, but having fewer than two parents in the household at age 14 did not. It would appear that any effect of number of parents on educational attainment must take place indirectly through its impact on other risk factors in the model. There are a number of possible interpretations of the sibling measure. First, more siblings means fewer financial resources per child, which may result in less educational attainment. In the present model the poverty measure partially controls for this, though as a dichotomous measure it is too crude to control completely for income effects. Second, it may reflect the smaller amount of social capital resources that a parent can expend on a child with many siblings who are competing for parental attention (Coleman 1988).

Model 2: Compound Risk Model

The results from model two indicate that the effects of risk are additive and do not compound as the number of risks increase. The coefficients for the measure indicating four or more risks are not significant, and are in fact positive. This provides strong evidence that theories which predict compounding effects, which would include many theories of the underclass, do not apply to the processes affecting educational attainment, at least for this cohort of men.

It must be pointed out, however, that those suffering from a multiple risk background receive substantially less education than those who are risk free, or who suffer from only one risk factor. By totaling up the coefficients for the three significant risk factors, one can see that those from large, poor families whose parents lack a high school degree may receive two and one half to three fewer years of education than those who have none of those risks.

Model 3: Social Capital Model

In this model the four measures of social capital are added: number of types of reading materials in the house at age 14, degree of encouragement received from parents and teachers to continue education past high school, and a residential stability measure indicating whether one had always lived in the same county as of the first year of the survey (when respondents were ages 14 to 17). Because the multiple risk measure was not significant, it was not included in this or subsequent models.

Results of the model indicate that social capital factors may play a pivotal role in determining educational attainment among male youth, perhaps equal to that of the risk factors identified in the model. The addition of these variables to those in model one nearly doubles the variance explained for whites (.15 to .29) and more than doubles it for African-American males (.13 to .33). However, because the two measures of encouragement reflect to an unknown degree unmeasured respondent characteristics such as intellectual ability and health (which cannot be controlled for with this data) rather than actual social capital, one cannot state with confidence the true magnitude of social capital's impact. Previous research has shown that intellectual ability accounts for only part this relationship, however (Sewell and Hauser 1975, Alexander et al. 1975).

Among whites, number of types of reading materials in the home and levels of parental and teacher encouragement were all significantly and positively associated with educational attainment. For reading materials, those with one to two types (magazines, newspapers, library books) received 0.64 years of additional schooling relative to those with no reading materials, while having all three types was associated with an additional 1.5 years of schooling. Those receiving some or much encouragement from their parents received an additional 0.8 and 1.4 years of schooling, respectively, relative to those receiving no encouragement. Teacher encouragement showed the smallest impact, with those achieving much teacher encouragement receiving an additional 0.78 years of education relative to those receiving none.

Though the overall impact of the social capital measures is equally dramatic for African-American men, the pattern of effects is substantially different. The impact of parental encouragement is similar to that for whites; those receiving much encouragement completed an

additional one and one quarter years of education compared to those receiving no encouragement. The number of types of reading materials in the home had no significant impact, however. Finally, the effects associated with teacher encouragement are much larger for African-American male youth: those receiving any encouragement completed approximately two years of additional education relative to those who received none. This runs counter to our general expectation that the impact of social capital and risk measures would be smaller for African-Americans.

It is unclear why African-American male youth should be so much more sensitive to encouragement from teachers than white youth, and so much less affected by reading materials in the home. Regarding the latter, it may be that the parents of these African-American men, who are substantially less educated than their white counterparts, are for that reason less able to use those reading materials in ways which enhance their children's education. This possibility will be examined in model four, where interactions between risk and social capital measures are explored. Regarding the findings on teacher encouragement, it may be that young African-American men have greater need than white youth for external validation of this sort, and so respond more strongly when it is given.

The fourth social capital measure is residential stability. According to Coleman, residential stability is associated with greater amounts of social capital deriving from strong relations with families and organizations within the community. The measure showed no significant relation to educational attainment for either race group. Data limitations forced us to operationalize this measure as indicating whether the youth had always lived in the same county by the time of the first interview (when respondents in our sample would have been ages 14-17). As such, it does not reflect the disruptive effects of recent or multiple moves emphasized by Coleman (1988), nor does it capture within-county moves. Nevertheless, given Coleman's emphasis on strong community ties one would have expected long term residential stability to be a positive factor.

It appears likely that other, positive factors related to residential mobility may be overwhelming any positive social capital effects associated with residential stability. For example, the migration literature indicates that residential mobility, particularly intercounty or interstate moves, is most often associated with socioeconomic upward mobility (Wilson, 1985). A better operationalization of the measure (Coleman's uses number of residential moves) may offer results

more consistent with Coleman's expectations.

To test whether at-risk youth are any more less sensitive to the effects of social capital than those not at-risk, stepwise regression techniques are used to enter a series of interaction terms to the model. Both the parental education and family poverty measures were interacted with the most favorable categories of the reading materials, parental and teacher encouragement measures.

Of the six interaction terms which were entered into the model in this fashion, none were significant for the white sample. For the African-American sample, only the interaction between the poverty risk measure and teacher encouragement proved to be significant. In general, these results indicate that social capital does not work very differently for those who are at-risk and those who are not, at least where educational attainment is concerned.

Nevertheless, the single significant interaction term is interesting and merits some discussion. The size and direction of this interaction term indicates that black men from low income families (less than 150 percent of the poverty line) receive substantially more benefit from teacher encouragement than those from better-off families. This would indicate that teacher encouragement acts as an additional protective factor to at-risk black youth against the negative effects of low income, though how it accomplishes this is unclear. Alternatively, such an interaction term could be indicative of a selection process where teachers were less likely to encourage low income black males to continue high school unless they were particularly promising students. This is an interesting issue which should be followed up in future research with data that include measures of academic ability.

Model 4: The Social-Psychological Model

In the fourth and final model of educational attainment, three measures related to the knowledge, desires and expectations of the youth relative to work are introduced. The first measure is a Duncan SEI score of the youth's desired occupation at age 30. The Duncan SEI is a ranking of occupational prestige with a range of 1-99. The second indicates whether the youth believes that there is a good to excellent chance that he will attain that occupational goal. The third is a composite measure representing the youth's knowledge of the world of work, with scores ranging

from 0 to 56. All three measures were taken in 1966, when the youth were between the ages of 14 and 17.

For both whites and African-Americans, the size of the coefficients for all risk and social capital measures which were significant in the previous model are moderately reduced, in several cases to the point of insignificance. The family poverty measure is reduced to insignificance for whites, as is the sibling measure for African-Americans. This evidence indicates that risk and social capital factors do affect educational attainment in part through their impact on the work related knowledge, expectations and desires of male youth.

Equally interesting is the finding that most of the risk and social capital measures continue to show strong direct effects on educational attainment after these personal measures are introduced into the model. To some extent this reflects the fact that measures of certain personal characteristics (e.g. intellectual ability, health) that could be expected to play a significant mediating role between risk and social capital factors, and educational attainment were not available for this analysis. It may also indicate that risk and social capital factors have impacts on educational attainment which are independent of the personal characteristics of the youth. This is certainly in keeping with many models of attainment, which emphasize the importance of parental desires and financial capacities in determining the attainment of offspring (see, for example, Becker, 1981).

The inclusion of these three characteristics significantly improves the predictive power of the model. The proportion of variance explained goes from 29 to 37 percent for whites, and from 34 to 43 percent for African-Americans. The effects associated with the occupational desires and knowledge of the world of work variables are strong and significant for both races. Expectations associated with the perceived likelihood of attaining one's occupational goal have strong effects for whites. Whites who believe that their chances are good to excellent receive an additional half year of education relative to those who think their chances are fair or poor. For African-American males, there is no significant relation. One would have expected this factor to have an impact on black youth's decisions to pursue additional schooling. However, this measure reflects slightly different considerations for African-American males than it does for whites. For African-American males, expectations of occupational success are undoubtedly heavily conditioned by their perception of racial barriers within the labor market and of their ability to surmount them.



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Educational Attainment: Summary of Findings.

- The three risk factors showing direct impacts on educational attainment are low income, low parental education, and having four or more siblings. The size of the impact for these factors was similar for blacks and whites, indicating that risk appears to operate similarly for both groups.

- The effects of multiple risks are additive rather than compounding or multiplicative for this measure of achievement. Even so, the total impact of having all significant risk factors is substantial, being associated with two and one half to three fewer years of education.

- Social capital factors were strongly associated with educational attainment, approximately doubling the variance explained over the model including risk measures only. Social capital may be at least as important as risk factors in affecting educational attainment.

- With one exception, at-risk youth were no more or less sensitive to the effects of social capital than those who were not at-risk. Among black men, however, those from low income families did appear to receive significantly more benefit from teacher encouragement than those from other families.

- The effects of both risk and social capital measures on educational attainment were in part mediated by social psychological factors for both race groups. Strong direct effects remained, however, for both sets of measures.

## OCCUPATIONAL ATTAINMENT AT AGE 29

The measure of occupational attainment used in this analysis was originally developed by Otis Dudley Duncan, and commonly known as the Duncan SEI score. Occupations (as categorized in the U.S. Census) are ranked on a scale ranging from 1 to 99 according to the income and education of those within each occupational category for the entire U.S. population (Duncan 1962). As such, it can function as an indicator of long- term earnings potential for young men.

This is important, because earnings in early adulthood often do not accurately reflect one's longer term income stream. In early adulthood, the lack of labor force experience among the most highly educated young men will function to minimize earnings differences with the less well-educated. Descriptive analyses in the previous chapter bear this out. Achievement measures related to income were rather weakly associated with risk and social capital background factors when measured at age 29, but the relationship strengthened substantially at age 35. Occupational attainment, on the other hand, was strongly associated with most risk and social capital measures at age 29, and remained strong at age 35.

In addition to those models covered in the analysis of educational attainment, measures of intermediate life course outcomes including several measures of mis-steps (early marriage, unstable labor force participation, and late graduation from high school), highest grade completed by age 26, and whether the youth ever received occupational training or served in the armed forces by age 26 are included in the model.

### Model 1: Risk Model

Table Two shows the results for all models for white and African-American males. The general pattern of effects in model one is similar to those found in the comparable model predicting to educational attainment in that risks related to number of siblings, parental education, and family poverty continue to figure prominently. There are some differences: among whites the poverty measure is not significant, and among blacks the parental education measure is of marginal significance (significant at the .10 level). Interestingly, having grown up in a central city iss



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**TABLE 2**
**Determinants of Adult Achievement Among White and African-American Males: Occupational Attainment at Age 29 (Duncan SEI Scores)**

| | Model 1: Risk | | Model 2: Compound Risk | | Model 3: Social Capital | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Main Effects | | w/Risk Interactions | |
| | WHITE | AFRICAN AMERICAN | WHITE | AFRICAN-AMERICAN | WHITE | AFRICAN-AMERICAN | WHITE | AFRICAN-AMERICAN |
| Intercept | 56.2*** | 38.5*** | 53.2*** | 35.2*** | 32.2*** | 14.5 | | 27.1 |
| **RISK MEASURES** | | | | | | | | |
| 1. < 2 parents | -3.1 | -3.0 | -4.0 | -4.5 | -2.1 | -4.8† | | -4.1 |
| 2. 4+ siblings | -6.0*** | -5.2* | -6.7*** | -4.9† | -4.8*** | -5.1* | | -4.7† |
| 3. Parent(s) < high school education | -8.6*** | -4.9† | -8.6*** | -5.5† | -5.2*** | -2.6 | | -5.0 |
| 4. Low parental occupational status | -3.7† | -3.4 | -3.9 | -4.7 | -1.3 | -5.5* | | -6.4* |
| 5. < 150% Poverty | -2.2 | -6.9* | -2.6 | -7.2* | -1.3 | -6.5* | | 6.0* |
| 6. Central city residence | 1.0 | 5.4* | 1.3 | 5.2 | 2.1 | 3.1 | | 2.7 |
| 7. 4+ Risks | | | 5.7 | 1.6 | | | | |
| **SOCIAL CAPITAL** | | | | | | | | |
| Reading Materials in Home | | | | | | | | |
| 8. 1-2 reading materials | | | | | -0.6 | 6.0* | | 6.5* |
| 9. 3 reading materials | | | | | 7.4* | 2.6 | | 1.6 |
| Parental Encouragement | | | | | | | | |
| 10. Some | | | | | 7.6** | -1.5 | | -4.2 |
| 11. Much | | | | | 10.4*** | 4.4 | | 13.3* |
| Teacher Encouragement | | | | | | | | |
| 12. Some | | | | | 0.2 | 5.3 | | 4.8 |
| 13. Much | | | | | 4.9* | 11.3*** | | 2.5 |
| Residential Stability | | | | | | | | |
| 14. Never moved | | | | | -2.7† | 2.2 | | 3.5 |
| **RISK/SOCIAL CAPITAL INTERACTIONS** | | | | | | | | |
| 3 x 13 | | | | | | | | -13.9** |
| 3 x 11 | | | | | | | | 16.3*** |
| **SOCIAL PSYCHOLOGICAL** | | | | | | | | |
| 15. Occupational desires | | | | | | | | |
| 16. Occupational expectations | | | | | | | | |
| 17. Knowledge of work | | | | | | | | |
| **LIFE COURSE MEASURES** | | | | | | | | |
| Mis-Steps | | | | | | | | |
| 18. Early marriage | | | | | | | | |
| 19. Unstable employment (1 Year) | | | | | | | | |
| 20. Unstable employment (2 Years) | | | | | | | | |
| 21. Late H.S. graduation | | | | | | | | |
| Postive Events | | | | | | | | |
| 22. Marriage by age 29 | | | | | | | | |
| 23. Highest grade completed | | | | | | | | |
| 24. Received occupational training | | | | | | | | |
| 25. Served in armed forces | | | | | | | | |
| **LIFE COURSE INTERACTIONS** | | | | | | | | |
| 5x19 | | | | | | | | |
| 5x20 | | | | | | | | |
| 5x21 | | | | | | | | |
| 11x21 | | | | | | | | |
| $R^2$ | 066 | | 064 | 130 | 119 | 219 | | 268 |

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Source: Child Trends, Inc., Washington, D.C.

**TABLE 2 (continued)**
**Determinants of Adult Achievement Among White and African-American Males: Occupational Attainment at Age 29 (Duncan SEI Scores)**

| | Model 4: Social Psychological Paths | | Model 5: Life Course Paths | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Main Effects | | w/Risk Interactions | | w/ Social Capital Interactions | |
| | WHITE | AFRICAN-AMERICAN | WHITE | AFRICAN-AMERICAN | WHITE | AFRICAN-AMERICAN | WHITE | AFRICAN-AMERICAN |
| Intercept | 15.2 | 6.7 | -27.2* | -27.1 | | -39.2* | | -24.6 |
| **RISK MEASURES** | | | | | | | | |
| 1. < 2 parents | -3.6 | -5.5* | 4.9t | -4.9t | | 4.9t | | 4.9t |
| 2. 4+ siblings | -3.5* | -3.5 | -2.3 | -1.5 | | -1.3 | | -2.3 |
| 3. Parent(s) < high school education | -3.2t | -2.0 | 0.9 | 1.1 | | 1.5 | | 1.1 |
| 4. Low parental occupational status | -0.8 | -4.7t | -2.4 | -4.8* | | -5.0* | | -4.8* |
| 5. < 150% Poverty | 1.6 | -5.2t | 0.9 | -3.6 | | 7.3t | | -3.6 |
| 6. Central city residence | 1.5 | 1.2 | 1.3 | 2.2 | | 1.3 | | 2.0 |
| 7. 4+ Risks | | | | | | | | |
| **SOCIAL CAPITAL** | | | | | | | | |
| **Reading Materials in Home** | | | | | | | | |
| 8. 1-2 reading materials | -0.6 | 4.3 | -2.9 | 3.0 | | 2.3 | | 3.4 |
| 9. 3 reading materials | 4.3 | -0.6 | 0.6 | -1.2 | | 1.1 | | 1.5 |
| **Parental Encouragement** | | | | | | | | |
| 10. Some | 5.6* | -3.6 | 3.2 | -5.3 | | -6.0 | | -4.5 |
| 11. Much | 7.2** | 3.2 | 2.9 | -0.3 | | -0.5 | | -3.6 |
| **Teacher Encouragement** | | | | | | | | |
| 12. Some | -0.9 | 3.1 | -2.4 | -4.1 | | -4.9 | | -4.5 |
| 13. Much | 1.9 | 9.0** | 0.3 | 0.- | | 0.9 | | 0.6 |
| **Residential Stability** | | | | | | | | |
| 14. Never moved | -1.4 | 3.5 | -1.6 | 2.5 | | 2.1 | | 2.5 |
| **RISK/SOCIAL CAPITAL INTERACTIONS** | | | | | | | | |
| 3 x 13 | | | | | | | | |
| 3 x 11 | | | | | | | | |
| **SOCIAL PSYCHOLOGICAL** | | | | | | | | |
| 15. Occupational desires | 0.2*** | 0.1t | | | | | | |
| 16. Occupational expectations | 5.2*** | -1.6 | | | | | | |
| 17. Knowledge of work | 0.6*** | 0.5* | | | | | | |
| **LIFE COURSE MEASURES** | | | | | | | | |
| **Mid-Steps** | | | | | | | | |
| 18. Early marriage | | | -4.3t | 2.6 | | 2.2 | | 2.6 |
| 19. Unstable employment (1 Year) | | | -3.7* | 3.9 | | -6.0 | | -3.7 |
| 20. Unstable employment (2 Years) | | | -4.4 | -2.7 | | 11.7t | | 3.2 |
| 21. Late H.S. graduation | | | -6.6*** | -2.7 | | 7.1 | | -6.0* |
| **Postive Events** | | | | | | | | |
| 22. Marriage by age 29 | | | 2.1 | 3.0 | | -3.6 | | -3.3 |
| 23. Highest grade completed | | | 5.4*** | 4.3*** | | 4.9*** | | 4.3*** |
| 24. Received occupational training | | | 5.2*** | 5.4** | | 7.1** | | 6.3** |
| 25. Served in armed forces | | | 2.5 | 0.1 | | -0.3 | | 0.1 |
| **LIFE COURSE INTERACTIONS** | | | | | | | | |
| 5x19 | | | | | | 18.2** | | |
| 5x20 | | | | | | -12.9* | | |
| 5x21 | | | | | | -12.9* | | |
| 11x21 | | | | | | | | 10.3* |
| $R^2$ | 167 | 249 | 328 | 402 | | 418 | | 418 |

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Source: Child Trends, Inc., Washington, D.C.

significantly associated with higher occupational attainment among African-American males even after controlling for family characteristics. Far from being a risk factor, central city residence afforded young African-American men of this generation better employment opportunities than other types of areas.

Surprisingly, having a head of household with a low occupational status did not negatively impact occupational attainment at age 29 for African-American males, and exhibited only a marginally significant impact for whites. Earlier research demonstrated a strong and significant relationship (Sewell and Hauser 1975, Alexander et al. 1975). The discrepancy may be accounted for by the fact that fewer family background characteristics were included in the model of the earlier work (Sewell and Hauser 1975). Or, it may be the result of the dichotomous coding scheme; a certain amount of explanatory power is inevitably lost when one dichotomizes continuous variables such as Duncan's socioeconomic index of occupations.

The proportion of variance explained by this model is twice as high for African-Americans as it is for whites (14 percent versus 7 percent). Such a large difference may be attributable in part to the fact that dichotomous rather than continuous measures of family background are used in the analysis. Because African-American youth are so much more likely to fall into any given risk category than whites (see Table One, Chapter One) one could reasonably expect that a model composed of risk measures would explain a greater proportion of the variance observed for African-American males.

Model 2: Compound Risk Model

The addition of a multiple-risk indicator to model one shows once again that the effect of multiple risks is additive and not compounding. In fact, the positive coefficient for this indicator implies that there may be a sort of discounting effect for additional risks, though the coefficient never reaches significance.

Multiple risks do, however, have a large and negative cumulative impact on occupational attainment of young men. For example, males who have all significant risk factors can expect to have

adult occupations scoring some 15 to 17 points lower on the Duncan SEI scale than those with no risks. This is true for both race groups. Such a large difference should eventually translate into very substantial differences in long term earnings (Featherman and Hauser 1978).

Model 3: Social Capital Model

The addition of the four social capital measures to the risk model greatly improves the predictive power of the model. The variance explained nearly doubles for white men (from seven to twelve percent), and increases by over 50 percent for African-American men (from fourteen to twenty-two percent). The results indicate that those with high rates of social capital will experience substantial gains in occupational achievement relative to those without, net of risk effects.

For white males, model three indicates that reading materials in the home, parental encouragement, and teacher encouragement are all positively and significantly associated with occupational achievement, with teacher encouragement showing the most modest effects. The measure of residential stability is negative and marginally significant, indicating that white males who grow up living in the same county may be somewhat less successful occupationally as adults. This runs counter to expectations based on Coleman's work, namely that residential stability will be associated with greater amounts of social capital deriving from strong relations with others in the community; but, as discussed above, this may reflect the crudeness of the measure.

For African-American males, teacher encouragement is strongly associated with occupational attainment, particularly when the encouragement is high. Controlling for other factors in the model, those who receive "much" teacher encouragement to continue their education past high school attain occupations scoring eleven points higher on the Duncan scale than those who receive no encouragement. Having more reading materials in the home is also significantly associated with occupational achievement, though not for those with the most materials (three). The most reasonable interpretation of this nonlinear effect is that one or more measures in the model correlated with this measure are somehow "stealing" variance. Correlations between having all three types of reading materials and other measures in the model are rather modest, however; most are below 0.2, and the highest is -0.43 (the parental education measure). The parental encouragement and residential



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stability measures are not significantly associated with occupational attainment for African-American males. Among the risk measures, low parental occupational status becomes significant when social capital measures are added to the model.

Overall, the patterns of social capital effects observed for both race groups are very similar to those observed in the models predicting to educational attainment. The incremental variance explained by social capital measures is somewhat smaller when predicting to occupational attainment, but is still substantial. In later models we will test whether social capital measures have any direct effects on occupational attainment, or whether they have their effect only indirectly through years of schooling and other early outcomes.

To test whether social capital measures act differently for those who are at-risk, a series of interaction terms are added to the basic social capital model. Specifically, each of the four risk measures showing at least marginal significance in model three (four or more siblings, low parental education, family poverty and low parental occupational status) are interacted with the highest categories of three of the social capital measures (all three reading materials in the home, much parental encouragement, and much teacher encouragement). These interaction terms are entered into the models using stepwise regression techniques.

For whites, no significant interaction terms were found, indicating that social capital factors work the same for those at- risk as for those who are not at-risk. Because stepwise regression procedures produce no estimates for insignificant variables added to the model, no estimates are shown for the white sample.

For African-American males, two significant interaction terms were found. The first interaction effect indicates that teacher encouragement is more beneficial to children with parents lacking high school educations than to those with more educated parents. The second significant interaction term moves in the opposite direction, indicating that it is the youths with better educated parents who benefit the most from parental encouragement.

One is in general well-advised to be skeptical of such large and divergent interaction terms when they are not expected. Collinearity problems often produce such results. However, each

interaction term entered significantly increases the proportion of variance explained by the model, which one would not expect to see if collinearity problems were driving the estimates. Together, they increase the proportion of variance explained from .22 to .26.

In the analysis of educational attainment a similar interaction involving teacher encouragement was also found. The second interaction term, indicating that at-risk youth were less responsive to parental encouragement, is in keeping with initial expectations based on the theory that parents lacking in human and financial capital would be less able to help their children turn social capital into actual achievement.

Model 4: The Social-Psychological Model

In this model the three social-psychological measures are added to model three. Interactions between risk and social capital measures were not carried forward in the analysis. The three social-psychological measures introduced into the model are all related directly to work; a youth's desired level of adult occupational achievement, whether they believe there is a good-to -excellent chance of attaining their occupational goal, and a measure of their knowledge of the world of work. I expect that these measures will be strongly associated with actual adult occupational attainment, and that much of the impact of risk and social capital factors will be mediated by the knowledge, desires and expectations of youth regarding work.

Among whites, all three social-psychological measures have large and significant impacts on adult occupational attainment. A one point increase in the Duncan SEI of the desired occupation is associated with a 0.2 increase in occupational attainment. High expectations of attaining one's occupational goal are associated with an increase of over five points in the Duncan SEI score of one's adult occupation. A one point increase in the score on one's knowledge of the world of work (on a scale of 0 to 56) is associated with over one half point increase in occupational attainment.

For African-American males, occupational desires and expectations are not significantly related to occupational attainment. Knowledge of the world of work, however, is associated with occupational attainment at a level comparable to that of whites.

What does it mean that occupational desires and expectations had strong impacts on the occupational attainment of white males, but no impact for African-American males? To put it another way, why did African-American males appear able to turn knowledge but not goals, motivation and expectations into occupational achievement? Such a situation may result from a racially discriminatory labor market, from a mismatch between goals and the structure of opportunities available, and quite possibly both. This possibility will be discussed further in the discussion section of the paper.

The inclusion of these social-psychological variables reduced the sizes of the coefficients of all significant risk and social capital variables for both races, though in no case did a measure become insignificant as a result. This indicates that risk and social capital factors affect occupational attainment in part indirectly through their effects on the knowledge, desires, and/or expectations of youth.

Model 5: Life Course Model.

In this model several measures of mis-steps and other important events encountered in early adulthood are added. The mis-steps include early marriage (before age 20), years of unstable employment by age 26, and whether one graduated late from high school. Important middle steps include highest grade completed, ever received occupational training, and ever served in the armed forces, all measured through age 26, and whether the respondent ever married by age 29.

There are several distinct questions explored in this model.

- What are the impacts of these early outcomes on occupational attainment?

- To what extent do they mediate the impact of risk and social capital factors on occupational attainment? Here we are particularly interested in the effects of highest grade completed.

- Do the impacts of mis-steps differ according to one's risk status?

Social psychological characteristics were not included in this model because we are interested in looking at the total relation between these early outcomes and the risk and social capital measures. The inclusion of the social psychological measures would have made it very difficult to draw inferences about these relationships because they mediate a substantial proportion of the relationship between risk and social capital measures and occupational attainment.

Early mis-steps had generally negative impacts on occupational attainment for whites but not for African-Americans. For whites, two of the three measures of early mis-steps (unstable employment and late graduation from high school) have significant negative impacts on adult occupational attainment. The third, early marriage, had a marginally significant and negative effect relative to those who had never married. The positive (though insignificant) coefficient for those who married after age 19 indicates that early marriage may be disadvantageous relative to later marriage as well. None of these measures were significant for African-Americans. The coefficients for the unstable employment measures were similar in direction and size that those for whites, however, indicating that the lack of significance for this measure may be due to the limited sample size for blacks.

The remaining early outcome measures had similar effects for both race groups. Highest grade completed had a very large impact, with every additional year of schooling associated with five additional points on the Duncan SEI scale for whites and four additional points for blacks. For both races, receipt of occupational training was significantly associated with advances in occupational attainment, but military service was not.

A look at the coefficients for the risk and social capital measures indicate that their impacts are largely mediated through the early outcome measures included in the model. For whites, none of the risk or social capital coefficients remain significant. For African-American males, only the measure of low parental occupational attainment maintains its significance. Additional analyses (not shown) in which non-education related and education related early outcome measures were added sequentially to the model revealed that the education measures are almost completely responsible



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for this mediation effect. The finding suggests that education is the critical pathway through which risk and social capital factors affect adult men's socioeconomic achievement regardless of race.

Interaction terms between selected risk measures (family poverty and low occupational attainment) and all measures of early mis-steps were entered into the model using stepwise regression to determine whether early mis-steps affected the occupational attainment of at-risk and non at-risk youth differently. No significant interactions were found for whites, indicating that mis-steps have equal impact regardless of one's risk status for this group.

The model for African-American men showed significant interactions between the low income risk measure and both unstable employment and late high school graduation. The inclusion of these interactions increased the proportion of variance explained by a substantial 3.1 percentage points. The results are suspicious on substantive grounds, however. Though the interactions are all substantial and negative, the main effects for these variables are substantial, positive and, in the case of the unstable employment and low income risk variables, marginally significant. When the coefficients for the main effects are added to the interaction terms, they cancel each other out implying that youth from low income families who have those mis-steps are not negatively impacted either by those mis-steps or by their low income background. Further, the positive and marginally significant coefficients for the main effects imply that those who are poor but do not have mis-steps may actually benefit from their low income background, and that those who are not poor but have early mis-steps may benefit from the mis-steps. Given the bizarre substantive implications of these interaction models, it is reasonable to prefer the simpler main effects model for African-American men as well as whites.

Next, interaction terms between selected social capital measures (those receiving much parental or teacher encouragement) and all measures of early mis-steps were entered into the model to test whether social capital can function to reduce the negative impact of early mis-steps. For whites, neither the social capital measures themselves nor the interaction terms were significant. This would indicate that, to the extent that social capital does help to overcome early mis-steps for whites, it does so indirectly through its effect on educational attainment. For African-Americans, there is a significant interaction term between parental encouragement and late graduation from high school. The main term for late graduation becomes negative and significant, and the interaction term

positive and significant. This indicates that African-American men who receive high levels of parental encouragement are buffered from the negative effects of late graduation from high school.

Occupational Attainmment: Summary of Findings.

- In the risk model (model 1), the pattern of effects for risk factors was the same for both occupational and educational attainment, with direct effects for low family income, having four or more siblings, and having parent(s) who lacked a high school education. In models that included social capital measures, the parental education measure became insignificant for black male youth, but the measure of low occupational status for head of household at age 14 became a significant risk factor.

- As in the analyses of educational attainment, the effects of multiple risk factors on adult occupational attainment appear to be additive rather than compounding. The impact of multiple risk factors is nevertheless substantial, with multiple-risk youth of both races attaining occupations that are 15-17 points lower on the Duncan SEI scale than those with no risks.

- Social capital appears to be a powerful determinant of occupational attainment for both race groups. Total variance explained doubled for whites and increased by 50 percent for African-American compared to models that included risk factors only. Teacher encouragement had a particularly strong association with occupational achievement for African-American youth, particularly among those whose parents lacked a high school education.

- All three social psychological measures (occupational desires and expectations, and knowledge of the world of work) had strong impacts on occupational attainment for white youth. For African-American youth, only the last measure was significantly related, indicating that desires and expectations do not play a significant role in determining occupational achievement for black males.

- Educational attainment appears to mediate the entire relationship of risk and social capital factors to occupational attainment among whites. For black male youth, only the occupational status of the head of household at age 14 remains significant once educational

attainment is included in the model.

All of the measures of early mis-steps (late graduation from high school, unstable employment, and early marriage) had negative direct effects on occupational attainment for white males. Among black males, only late graduation had a significant negative effect, and then only for those who did not receive parental encouragement to continue their education.

## YEARLY EARNINGS AT AGE 29

The outcome measure for this final set of regression models is a measure of total yearly earnings at age 29, inflated to 1989 dollars. The sequence of models is identical to those run for occupational attainment.

Model 1: Risk Model

Our initial risk model (not shown), which included all six risk measures revealed no significant relationship between any of the risk measures and earnings for whites. The proportion of variance explained by the model is only 1.3 percent; an F-test of the risk model indicates that it is not significantly different from a null model (.05 level).

The model for African-American men was much stronger, accounting for eight percent of the total variance. Poverty was the only risk factor significantly associated with earnings, although the measures for having fewer than two parents was marginally significant.

In the descriptive bivariate analyses of the previous chapter, a number of risk measures were shown to be significantly correlated with earnings at age 29 for whites, although none of these relationships were particularly strong. It appears that the inclusion of multiple risk factors in the regression model spread the variance explained so thinly that no significant relationships remain. For this reason, two of the risk measures showing the weakest coefficients (those related to number of siblings and parental occupation) have been removed from the model, and the model was reestimated for both race groups.

For whites, results of the more abbreviated model (model one of Table Three) reveal a significant relationship between coming from a low income family and adult earnings at age 29. Those from such families earn on average $2800 less, net of other variables in the model. No other risk measures in the model are significant. The proportion of variance explained is still a very modest 1.6 percent, but an F-test indicated that the model is now significantly different from the null model at the .01 level.

**TABLE 3**
**Determinants of Adult Achievement Among White and African-American Males: Yearly Earnings at Age 29**

| | Model 1: Risk | | Model 2: Compound Risk | | Model 3: Social Capital | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Main Effects | | w/Risk Interactions | |
| | WHITE | AFRICAN AMERICAN | WHITE | AFRICAN-AMERICAN | WHITE | AFRICAN-AMERICAN | WHITE | AFRICAN-AMERICAN |
| Intercept | 12.795 | 11.830 | 12.803 | 12.090 | 9.078 | 3.179 | | 1.640 |
| **RISK MEASURES** | | | | | | | | |
| 1. < 2 parents | -188 | -2997* | -243 | 3908** | -1470 | -3452* | | -3410* |
| 2. 4+ siblings | | | | | | | | |
| 3. Parent(s) < high school education | -1260 | 536 | -1328 | -414 | -687 | 851 | | 240 |
| 4. Low parental occupational status | | | | | | | | |
| 5. < 150% Poverty | -2792* | -5735*** | -2901* | -6451*** | -2381* | -5662*** | | -5075* |
| 6. Central city residence | 1675 | 1224 | 1687 | 1271 | 1680 | 1334 | | 672 |
| 7. 4+ Risks | | | 690 | 2513 | | | | |
| **SOCIAL CAPITAL** | | | | | | | | |
| Reading Materials in Home | | | | | | | | |
| 8. 1-2 reading materials | | | | | 2145 | -1010 | | -342 |
| 9. 3 reading materials | | | | | 2123 | -150 | | 7857** |
| Parental Encouragement | | | | | | | | |
| 10. Some | | | | | -297 | 3167 | | 3003 |
| 11. Much | | | | | 1690 | 2498 | | 4078 |
| Teacher Encouragement | | | | | | | | |
| 12. Some | | | | | 26 | 3049t | | 3620* |
| 13. Much | | | | | 1276 | 3730* | | 3627* |
| Residential Stability | | | | | | | | |
| 14. Never moved | | | | | 676 | -451 | | -562 |
| **RISK/SOCIAL CAPITAL INTERACTIONS** | | | | | | | | |
| 5 x 9 | | | | | | | | -10960*** |
| 5 x 11 | | | | | | | | 7 790** |
| **SOCIAL PSYCHOLOGICAL MEMBERS** | | | | | | | | |
| 15. Occupational desires | | | | | | | | |
| 16. Occupational expectations | | | | | | | | |
| 17. Knowledge of work | | | | | | | | |
| **LIFE COURSE MEASURES** | | | | | | | | |
| Mis-Steps | | | | | | | | |
| 18. Early marriage | | | | | | | | |
| 19. Unstable employment (1 Year) | | | | | | | | |
| 20. Unstable employment (2 Years) | | | | | | | | |
| 21. Late H.S. graduation | | | | | | | | |
| Postive Events | | | | | | | | |
| 22. Marriage by age 29 | | | | | | | | |
| 23. Highest grade completed | | | | | | | | |
| 24. Received occupational training | | | | | | | | |
| 25. Served in Armed Forces | | | | | | | | |
| **LIFE COURSE INTERACTIONS** | | | | | | | | |
| 5x18 | | | | | | | | |
| 11x21 | | | | | | | | |
| 13x21 | | | | | | | | |
| $R^2$ | 016 | | 016 | 080 | 031 | 106 | | 148 |

Source: Child Trends, Inc., Washington, D.C.

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**TABLE 3 (continued)**
**Determinants of Adult Achievement Among White and African-American Males: Yearly Earnings at Age 29**

| | Model 4: Social Psychological Paths | | Model 5: Life Course Paths | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Main Effects | | w/Risk Interactions | | w/Social Capital Interactions | |
| | WHITE | AFRICAN-AMERICAN | WHITE | AFRICAN-AMERICAN | WHITE | AFRICAN-AMERICAN | WHITE | AFRICAN-AMERICAN |
| Intercept | 6.297 | -1.915 | -5.185 | -9.497 | | -10.217 | | -9.297 |
| **RISK MEASURES** | | | | | | | | |
| 1. < 2 parents | -1569 | -3456* | -1068 | -2868* | | 2 | | -2556 |
| 2. 4+ siblings | | | | | | | | |
| 3. Parent(s) < high school education | -319 | 1617 | 107 | 453 | | | | 248 |
| 4. Low parental occupational status | | | | | | | | |
| 5. < 150% Poverty | -1804 | -4925** | -2215 | -4998*** | | -3004* | | -5083*** |
| 6. Central city residence | | -18 | 2109* | 674 | | 244 | | 497 |
| 7. 4+ Risks | | | | | | | | |
| **SOCIAL CAPITAL** | | | | | | | | |
| Reading Materials in Home | | | | | | | | |
| 8. 1-2 reading materials | 2108 | -1684 | 1324 | -2291 | | -1459 | | -2112 |
| 9. 3 reading materials | 1561 | -1485 | 947 | -915 | | -701 | | -994 |
| Parental Encouragement | | | | | | | | |
| 10. Some | -601 | 2208 | -890 | 1360 | | | | |
| 11. Much | 1283 | 2369 | 570 | -100 | | 2206 | | 1425 |
| | | | | | | 510 | | -3007 |
| Teacher Encouragement | | | | | | | | |
| 12. Some | -234 | 1962 | -794 | -992 | | -618 | | |
| 13. Much | 735 | 2466 | 292 | -370 | | -776 | | -963 |
| | | | | | | | | 2153 |
| Residential Stability | | | | | | | | |
| 14. Never moved | 854 | -237 | 650 | -877 | | 111 | | -1115 |
| **RISK/SOCIAL CAPITAL INTERACTIONS** | | | | | | | | |
| 5 x 9 | | | | | | | | |
| 5 x 11 | | | | | | | | |
| **SOCIAL PSYCHOLOGICAL MEMBERS** | | | | | | | | |
| 15. Occupational desires | 33 | 59* | | | | | | |
| 16. Occupational expectations | 2111 | 3120* | | | | | | |
| 17. Knowledge of work | 76 | 170* | | | | | | |
| **LIFE COURSE MEASURES** | | | | | | | | |
| Mis-Steps | | | | | | | | |
| 18. Early marriage | | | 819 | 4200* | | -21855*** | | 4016* |
| 19. Unstable employment (1 Year) | | | -3226** | -1205 | | -2069 | | -1431 |
| 20. Unstable employment (2 Years) | | | -6093*** | -5624*** | | -6534*** | | -6213*** |
| 21. Late H.S. graduation | | | -4024*** | -410 | | 27 | | -1011 |
| Postive Events | | | | | | | | |
| 22. Marriage by age 29 | | | 7217*** | 5822*** | | 5384*** | | 5647*** |
| 23. Highest grade completed | | | 567* | 1077*** | | 956** | | 1076*** |
| 24. Received occupational training | | | 4211*** | 1626 | | 1201 | | 1450 |
| 25. Served in Armed Forces | | | -145 | -987 | | -877 | | -992 |
| **LIFE COURSE INTERACTIONS** | | | | | | | | |
| 5x18 | | | | | | -21679*** | | |
| 11x21 | | | | | | | | 7022** |
| 13x21 | | | | | | | | -5567* |
| $R^2$ | 037 | 144 | 130 | 278 | | 329 | | 300 |

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Source: Child Trends, Inc., Washington, D.C.

For African-American men, risk factors related to low family income and having fewer than two parents as a teen both predict significantly to lower adult earnings. Coming from a low income family is associated with approximately $5700 lower earnings, and having fewer than two parents with nearly $3000 lower earnings net of other measures in the model. Because black single parent families are so much more likely to be poor, the latter measure may to some extent reflect additional poverty effects.

Model 2: Compound Risk Model

Results of this model demonstrate that having a large number of risk factors (four or more) is not significantly associated with reduced adult earnings net of the individual risk measures; the negative effects of risk factors do not compound. The coefficient for having multiple risk factors is in fact positive for both race groups, as it was in the analyses of educational and occupational attainment.

Model 3: Social Capital Model.

In this model the four social capital measures were added to the abbreviated set of risk variables in model one. For both races, the inclusion of the social capital measures increases the overall predictive power of the model, though in absolute terms the increase was a very modest one and one half to three percentage points.

None of the individual social capital measures reach significance in the white model. Among African-Americans only "much" teacher encouragement is significantly associated with adult earnings at age 29; those receiving such encouragement receive $3700 in additional earnings relative to those receiving no encouragement.

To test whether the impact of social capital may differ for at-risk and non at-risk youth, interaction terms between the low family income risk variable and each of the education-related social capital measures were added to the model using stepwise regression techniques. Even though

the social capital variables are by and large not significant in these models, interactions may reveal significant impacts for certain risk subgroups.

None of the interaction terms were significant for the white sample. For the African-American sample, two interaction terms were significant at the .01 level, and did significantly increase the predictive power of the model. The first interaction term involves reading materials in the home. The coefficient for the main term (for those having all three types of reading materials) is large, positive and significant, indicating that those who are not at-risk are able to benefit significantly from having lots of reading materials in the household. The interaction term is large, negative, and significant, and indicates that those who are at-risk (as measured by low family income) do not benefit from reading materials in the home, at least in terms of additional earnings.

The second interaction term that is significant for black male youth is between poverty and having "much" parental encouragement to continue education past high school. The interaction term is large, positive and significant, but the main term for parental encouragement goes from being small and positive to large and negative (though not significant). This can be interpreted as meaning that those who are at-risk receive some positive benefit from parental encouragement, whereas those who are not at- risk receive no such benefit.

Both of these interactions are plausible. They indicate that African-American male youth who are at-risk benefit from encouragement, but not from reading materials. However, neither one of these interaction terms proved to be significant in the models predicting to educational attainment, where one would have thought them most likely to appear. While this certainly does not discount them, it indicates that one should maintain some skepticism regarding their precise meaning.

Model 4: Social-Psychological Model

In this model we add to the variables in model three (though not the interactions) measures of occupational desires or goals, expectations of meeting those goals, and knowledge of the world of work, all measured at ages 14-17. For whites, none of these measures are significantly related at



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the .05 level to earnings at age 29, although the measure of expectations is positive and marginally significant.

For the African-American sample, both occupational desires and expectations are positive and significantly related to adult earnings. The third measure, knowledge of the world of work, is positive and marginally significant. Their addition to the model increases the proportion of variance explained from 10.5 percent to 14.4 percent, indicating that they add a great deal of explanatory power to the model. Their inclusion produces a modest decrease in the size of the coefficient related to the risk measure for low family income (from about $5700 to $4900), and reduces the coefficient for much teacher encouragement from $3700 to $2500, reducing it to insignificance. This indicates that both risk and social capital measures affect earnings in part through their impact on the desires and expectations of young African-American males.

Model 5: Life Course Model

In this model measures of significant intermediate life course events are added. These include mis-steps such as early marriage, years of unstable employment, and late graduation from high school; and (generally) positive events such as marriage after age 19, educational attainment, receipt of occupational training, and service in the armed forces.

Many of the life course events included in this final model are strongly related to earnings in adulthood. Counter to expectations, however, it would appear that the impact of the risk variables related to adult earnings at age 29 is not strongly mediated through these life course events. For whites, the coefficient for the lone significant risk measure, low family income, actually increases slightly. For African-American men, the coefficients for the two risk variables which were significant in the model continue to be significant, with their impacts reduced by about $600 each to $2900 for having fewer than two parents, and $5000 for coming from a low income family.

Whites who marry early do not earn significantly more or less than those who do not marry at all, but earn some $6000 per year less than those who marry after age 19. Among African-American men, those who marry early earn over $4000 more than those who do not marry, and

$1200 less that those who marry after age 19. So, while early marriage is either neutral or positive compared to no marriage at all, it is a disadvantage in comparison with later marriage, particularly among whites.

For both race groups, a history of unstable employment has a substantial negative relation to earnings at age 29. Those experiencing two or more years of employment instability between the ages of 18 and 26 can expect about $6000 less in earnings relative to those with no history of employment instability.

Late graduation from high school had a strong negative impact on adult earnings for white men; those who graduated late earned about $4200 less than on-time graduates. For African-American men the impact of late graduation is not significant, and the coefficient is quite modest in size. Late graduation is a more common event for African-American males. It may be that there is generally less selectivity involved in the processes which determine late graduation for these young men.

For both races highest grade completed is strongly associated with adult earnings. Each year of attainment yields approximately $600 more dollars for whites, and $1100 for blacks. Other analyses have also found this pattern, though the size of the race gap was not so large (Featherman and Hauser 1978, Chapter Six).

The receipt of occupational training is associated with substantially higher earnings among whites, but not blacks. For blacks, occupational training is associated with the attainment of higher occupational status, but does not appear to translate into higher earnings. This indicates that, for black men, it is higher occupational attainment which leads to more occupational training rather than the other way around. Finally, military service had no significant impact on earnings for either race.

In the next model interactions between selected risk measures and early mis-step measures are added to determine whether those who are at-risk are more or less sensitive to the negative effects of early mis-steps. Specifically, risk measures related to low income and number of parents were interacted with all mis-step measures, and entered into model 5 using step-wise regression. For whites, none of the interactions were significant, indicating that such events affect at-risk and not

at-risk white males similarly. For African-American males, there was a strong interaction between the low income risk measure and the early marriage mis-step measure. The results indicate that young black men who are at-risk and marry early are no better off than those who do not marry at all, and are considerably worse off than those who do not marry early. Early marriage continues to be strongly associated with increased earnings at age 29 (compared to those who do not marry) for those who are not at-risk.

In this final model the same statistical procedure is used to add interactions between social capital measures and mis-step measures. In the main effects version of model five, no social capital measures were significantly associated with earnings for wither race group. These interactions were performed to see if social capital might play a positive role for those who had experienced life course mis-steps.

There were no significant interactions for whites. For African-American men, two significant interactions were found. The first is a positive interaction between parental encouragement and late high school graduation. Neither of these measures had significant main effects, however, implying that those who received parental encouragement and graduated late from high school were actually better off than those who received encouragement or who graduated on time. I do not believe that there is a reasonable explanation for this finding.

The second interaction, between teacher encouragement and late high school graduation, is negative, indicating that those who receive teacher encouragement are negatively affected by late graduation, whereas those who do not receive such encouragement are not. Here, it may be that those who receive encouragement have greater cognitive ability than those who do not. If that were the case, then it is reasonable that those with greater ability, and therefore more to lose, might be more negatively impacted by late graduation than those of lesser ability.

Given the counter-intuitive nature of both of these interaction effects, one would do well to be suspicious of them, particularly since the mis-step measure involved (late high school graduation), showed no significant relationship to adult earnings in the model which did not include the interactions. The most likely interpretation of the results for both race groups is that social capital does not help reduce the negative impact of early mis-steps on adult earnings.

The most striking thing about this series of models predicting to adult earnings is the general lack of a relationship between measures taken during youth (risk, social capital and social-psychological) and earnings at age 29 for white men. The total variance explained by these three sets of variables was only 3.7 percent, compared to 14.4 percent for African-Americans. On the other hand, earnings did show itself to be strongly related to the intermediate life course events explored in model five for both blacks and whites.

What could account for this pattern of effects? Earnings are sensitive to years of labor force experience. In early adulthood, those with more education will have correspondingly fewer years in the labor force. This would have the effect of reducing the magnitude of the relationship between family background factors and earnings. Because white men receive nearly a year more schooling than black men, one might expect that the relationship between background factors and earnings in early adulthood would be correspondingly weaker for white men.

If this were the case, one would expect to see the relationship between family background and earnings strengthen at later ages as differentials in labor force experience are reduced. And indeed, comparisons of bivariate relationships between background measures and earnings at ages 29 and 35 bear this out, particularly for white men. Descriptive analyses in the previous chapter showed that measures of risk were much more likely to be significantly associated with earnings at age 35 than at age 29, and that the size of the effect was larger as well (see Table Nineteen, Chapter One).

Yearly Earnings: Summary of Findings

- Both risk and social capital measures predicted poorly to earnings at age 29, especially for whites. Descriptive analyses indicate, however, that these relationships strengthen considerably when earnings are measured at later ages.

- The social psychological measures were not significantly related to earnings for whites, net of risk and social capital measures. For African-American males, occupational desires and expectations were associated with greater adult earnings. This is somewhat curious, since these measures were not significantly related to occupational attainment.

- Unstable employment was associated with substantially lower earnings for both race groups: those with two or more years of unstable employment earned approximately $6000 less than those who had never been unstably employed. Early marriage was also associated with lower earnings compared to later marriage. The penalty was particularly large for white males, and for black males from low income families. Late graduation from high school negatively affected whites, but not blacks.

- Educational attainment had a strong, positive effect on adult earnings for both whites and blacks. Occupational training was related to increased earnings for whites, but not for blacks. This, considered in combination with the earlier finding that such training was significantly associated with occupational attainment for both groups, indicates that it is occupational attainment which leads to more training for black men rather than the other way around.

## DISCUSSION

At the beginning of this chapter a number of questions were posed to guide the analyses. I will now address these questions, bringing to bear the results of the analyses of all three measures of socioeconomic attainment.

### Measures of Risk

In these analyses six different measures of risk, along with an indicator for a multiple risk background, were used to explore two basic questions.

- What is the relative importance of each measure of risk in determining adult socioeconomic attainment?
- Do the negative effects of risk compound when multiple risks are present?

Of the six risk measures, low parental education, low family income, and having four or more siblings were the most consistently associated with lower adult socioeconomic attainment. Either parental education or low family income were significant negative factors for all three outcome measures and for both race groups, indicating that family financial and human capital deficits have generally negative impacts on socioeconomic attainment at age 29.

None of the three remaining measures ever achieved significance for whites. For African-American men, low parental occupational status was significantly associated with lower socioeconomic attainment. Having fewer than two parents had a direct negative effect on earnings, and a negative and marginally significant relationship to occupational attainment for African-American men.

Having grown up in a central city was never negatively associated with any of the adult achievement measures, indicating that the opportunity structure within central cities during the late 1960s was not significantly worse than those outside central cities. Transformations in the urban economy since that time may well have changed this, however (Wilson 1987).

Analyses revealed several differences by race in the relationship between risk and adult achievement. First, a greater variety of risk measures were related to adult achievement for African-American men. This is consistent with the notion that there is more social heterogeneity within low income and education groups for African-American parents resulting from a history of restricted socioeconomic opportunity. Under such circumstances, one might expect to see other risk measures accounting for variance in the achievement of offspring.

Second, for two of the three outcomes analyzed (occupational attainment and adult earnings), risk factors explained a much larger proportion of the variance for African-American men than for white men owing in large part, in all probability, to the considerably greater proportion of African-American men who were at-risk.

With regard to the impact of multiple risks, two points stand out. First, these analyses provide consistent evidence that the impact of multiple risks are additive rather than multiplicative or compounding where adult socioeconomic attainment is concerned. The multiple risk measure was never significantly associated with lower adult achievement net of the individual measures of risk. This finding has important theoretical implications for the analysis of high risk populations, and in particular for theories of the underclass, many of which are predicated (at least implicitly) on the compounding effects of risk factors.

Second, though the effects of multiple risk environments do not appear to be compounding, the additive effects are sufficient to produce greatly increased risks to adult socioeconomic achievement. For example, in the analysis of educational attainment young men who have all of the significant risk factors will on average receive two and one half to three fewer years of education than those with no risk factors (see Table One, model one).

Measures of Social Capital

With regard to the effects of the social capital measures, the following questions guided the analyses:

- What is the importance of social capital relative to risk factors?

- What role do individual measures of social capital play?
- Does the impact of social capital differ for those who are at-risk relative to those who are not?

With the exception of the analysis of adult earnings among white males, the addition of social capital measures always increased the predictive power of the model over and above that contributed by the risk measures alone. For the models predicting to educational attainment, the proportion of variance explained doubled for whites and more than doubled for African-Americans. The incremental variance explained was approximately 14 percentage points for white men and 20 percentage points for African-American men. In the analyses of occupational attainment, the proportion of variance explained nearly doubled for whites, and increased by over one half for African-American males.

These findings indicate that social capital is potentially a very important construct for modeling adult socioeconomic attainment. Unfortunately, two of the most important measures, parental and teacher encouragement to continue education past high school, reflect to an undetermined extent youth characteristics such as intellectual ability and health, which can have substantial impacts on adult achievement. Previous research has indicated that controlling for ability reduces but does not eliminate the relationship of these measures to socioeconomic attainment (Sewell and Hauser 1975, Alexander et al. 1975). An adequate accounting of the relative importance of social capital measures will require analyses using data that allow one to control for such factors.

All education-related measures of social capital appeared to play some role in determining socioeconomic attainment for both races. The effects associated with teacher encouragement were, however, substantially larger for African-American males. Ogbu (1977) has argued that teachers are in general less likely to offer African-American students academic encouragement. If this were so, then they might be encouraging only the most promising black male students, which would account for the stronger effect of teacher encouragement for blacks. Descriptive analyses of the previous chapter revealed, however, that whites and African-American males were equally likely to receive teacher encouragement, regardless of risk status (Table Twenty-six, Chapter One). Thus, it appears that African-American males are truly more sensitive than white males to the positive effects of

teacher encouragement.

In no case was the residential stability measure significantly associated with adult socioeconomic achievement. Unfortunately, limitations of the data forced us to operationalize this as whether or not one had moved away from the county of birth by the middle teen years. As such, it does not capture the potentially disruptive effects of recent or multiple moves as emphasized by Coleman (1988). Nevertheless, it indicates that social capital benefits may not increase significantly after a few years of residence. Alternatively, it may be that extreme residential stability is associated with negative factors such as a lack of socioeconomic mobility which counteract any additional social capital benefits.

For white men, social capital measures never had a significantly different impact for those who were at-risk and those who were not at-risk. This was true for all measures of socioeconomic attainment. For African-American men, some differences were found for each outcome examined. The analysis of educational attainment indicated that those from low income families derived more benefit from teacher encouragement than those who were not at risk by this measure. The analysis of occupational attainment revealed two significant interactions. They indicated that African-American men whose parents lacked a high school diploma were both more likely to benefit from teacher encouragement and less likely to benefit from parental encouragement than those with better educated parents. Finally, analyses of adult earnings indicated that African-American males from low income families were less likely to benefit from having reading materials in the home, and more likely to benefit from parental encouragement than those from higher income families. Each of these interactions added significantly to the predictive power of the models. In addition, examination of the data revealed no obvious outliers in the outcome measures to account for these divergent interactions.

The contradictory nature of these findings makes it difficult to offer a coherent interpretation of their collective meaning. While one can reconcile at-risk youth being more sensitive to some forms of social capital and less sensitive to other forms, it is difficult to reconcile the finding that African-American at-risk youth receive less benefit from parental encouragement where occupational attainment is concerned, but more benefit when adult earnings are considered.

While the implications of the findings are not entirely clear, they do allow us to tentatively conclude that at-risk African-American males sometimes react to social capital differently than those who are not at-risk, and that they can derive relatively more benefit for some social capital factors, and less benefit from others. Further research is needed here, however, before more definite conclusions can be drawn.

For white males, the analyses indicate that all youth can benefit equally from the positive effects of social capital regardless of risk status. It is unclear why sensitivity to social capital should vary by risk status for blacks, but not for whites. It may be that some of the social capital factors in these analyses (e.g. parental and teacher encouragement) represent significantly different social processes for black and white males. This is an area in which relatively little research has been done to date, but which will be of great significance for future research on social capital.

Pathways

In the preceding analyses two types of pathways leading from family background factors (both risk and social capital) to adult socioeconomic attainment were examined; the social-psychological pathway, and the life course pathway.

In examining social-psychological measures, the following questions were addressed.

- What are the impacts of the knowledge, desires and expectations of youth on adult socioeconomic attainment?
- To what extent do these social-psychological characteristics of youth mediate the relationship between family background factors (both risk and social capital measures) and adult socioeconomic attainment?

The results of our models suggest that the impacts of both risk and social capital factors on adult socioeconomic attainment are mediated in part by the knowledge, goals and desires of the young men. The inclusion of these social-psychological measures reduced the size of the coefficients of both risk and social capital measures in the models predicting to educational and occupational attainment. In most cases, however, risk and social capital measures continued to have significant



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though somewhat reduced direct effects after the social-psychological measures were introduced.

For whites, all three social-psychological measures (occupational goals, expectations of meeting those goals, and knowledge of the world of work) were significant for both educational and occupational attainment. None of the measures predicted to yearly earnings, however.

For African-American males, the pattern of effects for these variables was not consistent across the outcomes. Knowledge of the world of work was significantly associated with educational and occupational achievement, but not earnings. Occupational goals were associated with educational attainment and earnings but not, ironically, with occupational attainment. Finally, expectations regarding the likelihood of reaching those occupational goals were significantly related only to income.

These findings indicate that African-American males are motivated by their occupational goals to pursue and achieve additional education and income but, unlike their white counterparts, seem unable to turn those goals into occupational advancement. This may indicate that there is something particular to the labor market faced by young black men which prevents them from doing so. Dual labor market theory suggest that blacks and whites do face substantially different labor markets, and that the opportunities for advancement are more restricted for blacks (Hodson and Kaufman 1982). In addition, it may be that there was some degree of mismatch between the desires and expectations of African-American youth and the structure of opportunities available to them in the labor force. The questions on occupational goals and expectations were asked at the height of the civil rights era, a time of heightened expectations and heightened awareness of barriers to occupational advancement for the entire African-American community. It would not be surprising if the desires of African-American young men did not match well with the opportunities available to them during this period.

In the analyses of adult occupational attainment and earnings, both positive and negative life course events in early adulthood were examined. The negative events, labeled mis-steps, include unstable labor force attachment, late graduation from high school, and early marriage. Other events in the model include educational attainment, marriage after age 19, occupational training, and military service.

In the analyses that included these measures the following questions were explored.

- Do these intermediate life course events mediate the relation between family background characteristics (risk and social capital measures) and adult socioeconomic attainment?

- Which of these intermediate events is significantly related to adult achievement?

- To what extent do the effects of early mis-steps differ for those who are at-risk and those who are not?

- To what extent can social capital be used to overcome the negative effects of these early mis-steps?

In the analyses of occupational attainment, it was found that educational attainment played a powerful mediating role. For whites, all risk and social capital measures became insignificant when educational attainment was entered into the model. For African-American men, all social capital effects were reduced to insignificance, and only one of three risk measures (low parental occupational attainment) maintained its significance, though the size of its coefficient was greatly reduced.

Based on previous research a similar pattern was expected in the analysis of earnings. Surprisingly, intermediate life course event measures (including educational attainment) played no mediating role for the white group, and a limited mediating role for African-Americans. This was found despite the fact that the majority of these measures were themselves strongly related to adult earnings for both groups. This may have resulted from the generally weak relationship of earnings at age 29 to family background measures observed in these models. Because the strength of this relationship increases substantially when earnings are measured at age 35, it is possible that analyses of earnings at that age would show a greater mediating effect of educational attainment.

In these analyses significant race group differences emerged regarding the impact of "mis-

steps". For white men, all three mis-step measures were negatively associated, and at least marginally significant, for both occupational attainment and yearly earnings. In general, the negative impacts were substantial. Further, the analyses indicated that at-risk and not at-risk white youth were equally negatively affected by these mis-steps. Finally, there were no significant social capital effects once the life course measures were added to the model. Interactions between the social capital and mis-step measures failed to produce significant social capital effects for those who had experienced mis-steps.

Several conclusions can be drawn from these findings. First, the socioeconomic attainment of white men is strongly negatively impacted by youthful mis-steps such as early marriage, labor force instability and late graduation from high school. Second, risk status neither buffers white males from these effects, nor does it make them more vulnerable to them. Finally, social capital does not directly help those white men who have experienced early mis-steps to overcome them. To the extent that social capital does help, it does so indirectly through its impact on educational attainment (which was strongly associated with both occupational and earnings attainment).

For African-American males, the picture is a good deal more complicated. For occupational attainment, there was no clear evidence of negative effects for any of the social mis-step measures. Some negative effects were found when interacted with measures of risk, but the results were substantively uninterpretable. The models for earnings, on the other hand, indicated that early unstable employment had a substantial negative impact on adult earnings for all black males, and that those who came from low income families were negatively affected by early marriage relative to those who married later. These impacts were nevertheless somewhat smaller than those for white men.

In general, our analyses indicate that social capital does not appear to help African-American men overcome early mis-steps, net of other variables in the model. In those life-course models which did not contain interaction terms, social capital was never significantly associated with either occupational attainment or adult earnings. Models interacting social capital and mis-step measures found significant interactions with one of the mis-step measures (late high school graduation) but the direction of the impact of high social capital was not consistent. High rates of parental encouragement did demonstrate some buffering effects viz. late graduation for both occupational

attainment and yearly earnings. Teacher encouragement, on the other hand, was associated with greater sensitivity to the negative effects of late graduation in the analysis of yearly earnings.

Several conclusions can be drawn from the analyses relating mis-steps to socioeconomic attainment for African-American men. First, these men are in general less negatively affected by these mis-steps than their white counterparts. Effects were smaller and more often non-significant for African-American men. Second, at-risk black males were in general not affected differently by mis-steps than those not at-risk, with the exception that the former were somewhat more negatively effected by early marriage. Third, social capital did not appear to directly help those who have had mis-steps to overcome them, although parental encouragement did seem to operate as a buffer for African-American males who graduated late from high school.

As expected, educational attainment was strongly and positively associated with both occupational attainment and yearly earnings for both race groups. Based on the findings of previous research, it was expected that educational attainment would play a strong mediating role between one's risk and social capital background characteristics and both of the non-education outcomes analyzed (Sewell and Hauser 1975). This was indeed the case regarding occupational attainment. Surprisingly, educational attainment played at most a minor mediating role in the analysis of adult earnings. Here, significant risk variables (low income and having fewer than two parents) were affected little by the inclusion of the education measure, indicating that these risk factors play a role in determining earnings that is independent of their effects on educational attainment. This implies that programs that improve the educational attainment of at-risk youth will not totally eliminate the effects of a disadvantaged background.

The life course models reveal that the receipt of occupational training was associated with greater occupational attainment for both races, but had a positive impact on earnings only for whites, net of other factors. This may indicate that there is a weaker relationship between occupational attainment and earnings for African-American men than for white men. This is certainly possible, since the Duncan occupational status score was not produced separately by race. The important point here, however, is that African-American men in this cohort did not benefit monetarily from occupational training. If this lack of an effect holds true for contemporary black youth, it has serious implications for many existing training programs designed to improve work outcomes for at-risk

young men.

Finally, no evidence was found that service in the armed forces had an impact on adult socioeconomic attainment. One must keep in mind, however, that this was a time of war. The potential benefits of military service may have been obscured by the randomizing effects of the draft, and the fact that many who served during this period spent much of their service time fighting in the war. The effects of military service during peace time may be much different.

## CONCLUSIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH

Based on the analyses reported in this chapter, one may draw the following conclusions.

- Risk factors can substantially diminish the adult socioeconomic attainment of male youth, particularly when multiple risk factors are present. All risk factors do not have equal impacts, however. Risk factors with the largest and most consistent direct effects on adult attainment include coming from a low income family, having parents who lack a high school education, and having four or more siblings. On the other hand, in this cohort of males having fewer than two parents at age fourteen appears to have little direct effect on adult socioeconomic achievement net of other risk factors.

- Social capital appears to be a powerful factor that can positively influence the adult socioeconomic attainment of all male youth, both at-risk and not at-risk, white and African-American. This research supports Coleman's contention that social capital ought to be incorporated into the economists' capital-oriented framework for modeling socioeconomic attainment. It is a concept deserving of further research using more and better measures than were available for this analysis.

- African-American males appear to be particularly sensitive to the positive effects of encouragement from their teachers relative to their white counterparts. The evidence indicates that the long term benefits are even larger for those who are at-risk. This suggests that programs designed to develop closer relationships between at-risk African-American males and their teachers would be a powerful means of improving their levels of success in adulthood.

- Educational attainment is the critical pathway linking both risk and social capital background factors to adult occupational attainment. This echoes the findings of earlier research (Sewell and Hauser, 1975, Alexander et al., 1975) and suggests that increasing educational attainment among at-risk youth should be a primary goal of

those interested in improving the proportion who succeed as adults.

Mis-steps in early adulthood can be costly to achievement in later adulthood for both at-risk and non at-risk youth. Programs designed to improve rates of on-time graduation and reduce the incidence of unstable employment in early adulthood could significantly improve achievement in later adulthood for all who are at-risk of experiencing such mis-steps.

This research demonstrates that a social capital-oriented, pathways approach to the study of adult socioeconomic attainment among both at-risk and non at-risk youth is both useful and promising. Progress in this research area will involve analyses of a greatly expanded and better measured set of social capital measures taken at numerous points in the child's life course, and more detailed analyses of the social-psychological and life course pathways linking background characteristics to adult achievement.

Regarding measures of social capital, research emanating from the child development and family functioning traditions within psychology have identified a wide variety of family process constructs important to the growth and development of children and youth within families. These include measures of the parent-child relationship (Zaslow, Coiro and Moore 1993, Straus 1990), the home environment (Caldwell and Bradley 1984), family stability (Heatherington and Clingempeel 1992, Zill et al. 1993), social support and connectedness (Pascoe et al. 1981, Dunst, Jenkins and Trivette 1984, Zill et al. 1991), peer relationships, and relationships with local institutions such as school and church (Coleman 1988). Until recently, most of this research has depended on small and often nonrepresentative samples, and only rarely have the measures been related to outcomes in adulthood.

Within the last few years, several large scale longitudinal data sets have become available that contain a wide variety of social capital measures of this sort, and which allow one to follow children into early adulthood (as far as age 23). These include the National Survey of Children, the National Survey of Families and Households, and data from Frank Furstenberg's 20 year study of teen mothers in Baltimore. A few studies have been done using these data which relate social capital measures at one or more points in the child's life cycle to levels of achievement in young adulthood

(Zill et al. 1993, Brooks-Gunn et al. forthcoming). Existing work, however, barely taps the potential of these data sets for relating social capital measures to achievement in early adulthood. With this data, one can look at social capital characteristics at birth, early childhood, and adolescence, tracing the social-psychological and life course pathways through which they affect early adult achievement. The NSC is particularly promising in this respect as it contains both family and community level measures in both early childhood and adolescence.

Additional research on the life course pathway linking one's childhood background to adult achievement should go beyond the simple analysis of events to look at the sequencing and timing of those events, things which were not possible with the NLSYM due to gaps in the data and lack of exact dating of important events. Such analyses can be done using the National Longitudinal Survey of Youth. This is an annual survey of youth begun in 1979 and continuing to the present. Data are currently available through 1992, when respondents were between ages 26 and 33. The strength of this data set is in the detailed information available concerning the occurrence and timing of life course events in youth and early adulthood that are important to the study of adult socioeconomic attainment. For example, with this data set one can produce continuous labor force, schooling, marriage and child bearing histories with event dates to the nearest month (see Tiemeyer 1991, Moore et al. 1993). This allows for very detailed analyses of the life course pathway from youth to adult achievement. Both sequencing and timing issues can be addressed in analyses using this data using sophisticated analysis techniques such as hazard and endogenous switching regression models.

The analyses presented in this report demonstrate the value and potential of an approach to socioeconomic attainment research that systematically incorporates measures of social capital. In addition, it demonstrates the importance of risk factors in determining the adult socioeconomic attainment of male youth, the role of intermediate life course events in the attinment process, and the extent to which social capital can ameliorate the negative impact of risk factors. Finally, exciting and productive avenues for future research were identified.



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**Bibliography**


Alexander, K.L., Eckland, B.K., and Griffin, L.J. (1975). The Wisconsin Model of socioeconomic achievement: A replication. American Journal of Sociology 81:2: 423-342

Baker, P.C. and Mott, F.L. (1989). NLSY child handbook. Columbus: Ohio: Center for Human Resource Research.

Banfield, E., (1974). The unheavenly city. Boston: Little, Brown and Co.

Becker, G.S. (1981). A treatise on the family. Cambridge, MA: Harvard University Press.

Blau, P.M. and Duncan, O.D. (1967). The American occupational structure. New York: Wiley.

Bronfenbrenner, U. (1979) The ecology of human development. Cambridge, MA: Harvard University Press.

Brooks-Gunn, J., Guo, G., and Furstenberg, F.F. (Forthcoming). Who drops out of and who continues beyond high school?: A 20 year follow-up of black urban youth. Journal of Research on Adolescence.

Brown, B.V. (1993). Who are America's disconnected youth? Washington, D.C.: American Enterprise Institute.

Brown, B. (1993a). Family functioning and adolescent behavior problems: an analysis of the National Survey of Families and Households. Report prepared for the Assistant Secretary for Planning and Evaluation, U.S. Department of Health and Human Services. Washington, D.C.: Child Trends, Inc.

Caldwell, B.M. & Bradley, R.H. (1984). Home observation for measurement of the environment (revised edition). Little Rock, AK: University of Arkansas.




BEST COPY AVAILABLE

Coleman, J. (1988). Social capital in the creation of human capital. American Journal of Sociology. 94: s95-s120.

Crockenberg, S. (1981). Infant irritability, mother responsiveness and social influences on the security of infant-mother attachment. Child Development. vol. 52, pp. 857-865.

Duncan, O.D. (1962). A socioeconomic index for all occupations. in Occupations and Social Status. Reiss, A. and Duncan, O.D, Hatt, P. and North, C. New York: Free Press of Glencoe.

Dunst, C.J., Jenkins, V., and Trivette. C.M. (1984). The family support scale: reliability and stability. Journal of Individual, Family, and Community Wellness. 1:4 45-52.

Featherman, D. L. and Hauser, R.M., (1978). Opportunity and change. New York: Academic Press.

Garmezy. N. (1985). Stress-resistant children: the search for protective factors. In J.E. Stevenson (ed.) Recent Research in Developmental Psychology. Oxford: Pergamon Press.

Hernandez, D. 1993. American's children: resources from family, government and the economy. New York: Russell Sage Foundation.

Hetherington, E.M., and Clingempeel, W.G. (1992). Coping with marital transitions. Monographs of the Society for Research in Child Development, vol. 57, nos. 2-3, serial no. 227. Chicago: University of Chicago Press, 1992.

Hodson, R. and Kaufman, R. (1982). Economic dualism: a critical review. American Sociological Review. 47:727-39.

Lewis, O., (1966). The culture of poverty. Scientific American. 215: 4: 19-25.

Luthar, S. and Zigler, E. (1991). Vulnerability and competence: a review of research on resilience in childhood. American Journal of Orthopsychiatry. January 1991: 6-22.



BEST COPY AVAILABLE

Mare, R. Winship, C., and Kubitschek, W. (1984). The transition from youth to adult: understanding the age pattern of employment. American Journal of Sociology. 90: 326-58.

Moore, K.A., Myers, D.E., Morrison, D.R., Nord, C.W., Brown, B.B., and Edmonston, B., (1993). Age at first childbirth and later poverty. Journal of Research on Adolescence.

Moore, K.A., Nord, C.W., and Peterson, J.L. (1989, May/June). Non-voluntary sexual activity among adolescents. Family Planning Perspectives. 21(3), 110-114.

National Longitudinal Survey users guide (1993). Center for Human Resource Research. The Ohio State University. Columbus, Ohio.

Ogbu, J.U. (1977). Minority education and caste: The American system in cross-cultural perspective. New York: Academic Press.

Pascoe, J.M., Loda, F.A., Jeffries V., and Earp, J.A. (1981). The association between mothers' social support and provision of stimulation to their children. Developmental and Behavioral Pediatrics. volume 2, No. 1, pp. 15-19.

Rhoton, P. and Nagi, K. (1991). Attrition by wealth in the original NLS cohorts. Working Paper, Center for Human Resource Research, The Ohio State University.

Rutter, M. (1988). Pathways from childhood to adult life. Paper presented at the Association for Child Psychology and Psychiatry Annual Conference.

Rutter, M. (1979). Protective factors in children's responses to stress and disadvantage. in M.W. Kent and J. Rolf (eds.), Primary Prevention of Psychopathology, Vol. III: Social Competence in Children. Cambridge, Mass: Harvard University Press.

Sakamoto, A. and Chen, M. (1991). Inequality and attainment in a dual labor market. American Sociological Review. 56: 295-308.



BEST COPY AVAILABLE

Sandefur, G., McLanahan, S., and Wojtkiewics, R. (1992). The effects of parental marital status during adolescence on high school graduation. Social Forces. 71: 103-21.

Sewell, W. H., Hauser R.M. (1975). Education, occupation and earnings: achievement in the early career. New York: Academic Press.

Smith, S. and Zaslow, M. (Forthcoming). Theoretical rationale and policy context for two generation intervention. in S. Smith (ed.) Two-generation programs for families in poverty: A new interaction strategy. Hillsdale. NJ: Erlbaum.

Stolzenberg, R. and Relles, D.A. (1990). Theory testing in a world of constrained research design: the significance of Heckman's censored sampling bias correction for non-experimental research. Sociological Methods and Research. 18:4.

Tiemeyer, P. 1991. Racial differences in the transition to stable employment for young males. CDE Working Paper 91-03.

Tienda, M. and Wilson, F. (1992). Migration and the earnings of Hispanic men. American Sociological Review. 57: 661-678.

Upchurch, D.M., Astone, N.M., and McCarthy J. (1990). Influences of family background on adolescent childbearing: From the 1940s to the 1980s. Paper presented at the Annual Meeting of the Population Association of America, May 3-5, 1990.

Wilson, F.D. (1985). Migration and occupational mobility: a research note. International Migration Review. 19: 278-92.

Wilson, J.Q. (1975). Thinking about crime. New York: Basic Books.

Wilson, W.J. (1987). The truly disadvantaged: the inner city, the underclass, and public policy. Chicago: University of Chicago Press.



BEST COPY AVAILABLE

Wilson, W.J. (1978). The declining significance of race: Blacks and changing America. Chicago: University of Chicago Press.

Winship, C. and Mare, R. (1992). Models for sample selection bias. in Annual Review of Sociology. volume 18: 327-50.

Zaslow, M., Coiro, M.J., and Moore, K.A. 1993. Methodological work within the JOBS-Child and family subgroup study. Paper presented at the Winter Conference of the American Statistical Association, Fort Lauderdale, FL, January 1993.

Zill, N., Morrison, D.R., and Coiro, M.J. (1993). Long-term effects of parental divorce on parent-child relationships, adjustment, and achievement in young adulthood. Journal of Family Psychology, special issue on Family in Transition, 7(1), 91-103.

Zill, N., Rhoads, A., Brown, B., Stief, T., Snyder, N., Moore, K. and Wolpow, E. (1991). Improving Federal statistics on families: assessing family strengths in national sample surveys. Final Report under HHS-100-88-0041, 1991.



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